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1ST PLAN

FOUR YEAR PLAN
OF
CAPITAL EXPENDITURES

BURMA

MINISTRY OF NATIONAL PLANNING

14 JUNE 1957.

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MINISTRY OF NATIONAL PLANNING

INDEX

Sector and Agency	Section
FORWARD	
Resources for the Four Year Plan	A
Capital Programme Summary	B
Agriculture and Irrigation	C
A.R.D.C.	
S.A.M.B.	
Veterinary Department	
Agriculture Department	
Irrigation Department	
Forestry and Timber	D
S.T.B.	
Forest Department	
Mining	E
Ministry of Mines	
M.R.D.C.	
Directorate of Mines	
Geological Department	
Transportation and Communication	F
Part I - Transportation	
UB Railways Board	
I.W.T.B.	
UB Shipping Board	
UB Airways Board	
Civil Aviation Board	
Marine and Lighthouse Department	
Board of Management for the Port of Rangoon	
Outport Programme	
Part II - Communications	
Telecommunications Department	
Highways Department .. Roads	
Postal Department	
Power	G
E.S.B.	
R.E.S.B.	
Industry	H
I.D.C. (includes Tile and Brick Factory)	
Pyidawtha Grants	I

Sector and Agency	Section
Building Construction	J
National Housing Board	
SPIB	
Russian Projects	
Highway Department (Buildings)	
Buildings (Other Department)	
Prime Minister's Office	
Social Services	K
Part I - Health	
Part II - Education	
Directorate of Education	
Directorate of Technical Education	
Universities	
Part III - Other agencies	
Social Security Board	
Environmental Sanitation and Water Supply Board	
State Film Promotion Board	
Ministry of Labour	
Ministry of Democratization and Local Government	
Ministry of Social Welfare	
Miscellaneous	L
Customs Department	
Foreign Office	
Government Stationery and Printing	
Broadcasting Department	
Pawnshops	
Union of Burma Purchase Board	
Civil Supplies Management Board	
Union of Burma Applied Research Institute	
Union of Burma Stevedoring Board	
Ministry of Land Nationalization	
State Commercial Bank	
Union Bank	

GOVERNMENT OF THE UNION OF BURMA
MINISTRY OF NATIONAL PLANNING

Rangoon the 11th June, 1957

1. The Four Year Plan included in this document was prepared by the Ministry of National Planning and approved by the Economic and Social Board.

2. The chief criteria which entered into its formulation were:

   a. The resources likely to be available;
   b. Achievement of the maximum increases in output feasible within resource limitations;
   c. Appropriate emphasis given to the primary sectors of the economy-agriculture, forestry and mining;
   d. Emphasis on foreign-exchange earning and foreign exchange conserving projects;
   e. A sound coordinated and balanced progress in the several sectors of the economy;
   f. A sound balance between productive, basic services, and social welfare projects;
   g. The orderly completion of projects already under way;
   h. Sound technical and economic feasibility of the projects; and
   i. Geographic dispersion of projects to the degree feasible;
   j. Wherever possible, considerations of specialized manpower and management problems have also been taken into account.

3. I believe therefore that the Four Year Plan and capital expenditure programme here presented provide a solid basis for consideration in the light of the new policy directives, and suggest that the plan draft serve as a point of departure in the review now to be undertaken.

4. The Four Year Plan provides for capital expenditures that total K 251 crores. Of this, about K 60 crores were included in the present year's capital budget leaving K 191 crores for the remaining three years of the Plan.

5. Under the Four Year Plan there is a prospective shortage of both foreign exchange and of kyats. It is contemplated that the foreign exchange shortage can be covered by additional foreign loans and credits. At present, there are several of these potential loans under consideration, including a renewal of PL 480 surplus agricultural commodity arrangements with the US (K 30 crores) and West German credit line (K 8 crores). There may also be further loans from the World Bank. [Note: Firmer foreign resources such as reparations, the US loan and the Indian loan, etc., are already counted upon in the projection.] However, it is not considered prudent to plan definitely that all these potential resources will be actually available in time to meet Burma's needs.

6. The kyat shortage could be covered by internal borrowing from the banking system, but the resulting increase in the privately held money supply might exceed the limits consistent with economic stability. Above all, the estimates of the kyat shortage is necessarily based on the assumption that the foreign exchange shortage would be fully met from borrowed funds, which would be used in part to finance a record level of anti-inflationary imports for private use.

Thus, if the foreign exchange shortage is not covered, or if for administrative and policy reasons the projected high level of private imports cannot be sustained, there will be an additional inflationary danger. Efficient distribution of imports must also be assured.

7. Consequently, the Four Year Programme as presented is considered to be feasible only if Government is prepared to ensure that inflationary pressures are kept under control. If the foreign exchange needed is not covered, this can be done either by trimming proposed expenditures-current as well as capital-at budget time or by compensation for a shortfall of anti-inflationary imports by increasing Government kyat revenues.

8. The level of the proposed programme is ambitious, in that it will require vigorous action by the government both to execute it and to keep a stable economy. But a worthwhile programme should be ambitious and challenging and should stimulate us to achieve better results. Targets that are set too low can be just as costly as over-ambitious targets. However, it is important to note the necessity of accepting both parts of the Four Year Programme, the need for projected resources as well as the desirability of the programme of capital expenditures. If the proposed level of capital expenditures is accepted, Government must accept the responsibility for adopting the policies and measures necessary to provide the resources without further inflation.

9. The projects included in the Four Year Programme represent a severe curtailment of the plans of many agencies whose demonstrated requirements far exceed possible resources. In order to minimixe the chance of a further forced and unwanted curtailment of economic and social development, the following actions are needed:

a. Arrangements must be made as promptly as possible to assure availability and utilization of foreign resources which are not yet firmly in hand, for example, additional US PL 480 funds, and the West German credit line.

b. All agencies concerned with imports for private use must be instructed to fulfill their import programmes on time and to arrange for expeditious distribution. This includes quasi-Government institutions, such as the cooperative societies and the joint venture trading corporations.

c. Operations of State managed Boards and Corporations must be improved to increase revenue returns to Government.

Prices charged by the Boards and Corporations dealing with the public should be set where appropriate with a view to obtaining more revenue.

d. All possibilities of increasing tax collection, whether through new taxes, higher rates, or improved administration, must be thoroughly reviewed and appropriate action taken.

U Mo Myit
Secretary
Ministry of National Planning

RESOURCES FOR THE FOUR YEAR PLAN

This appraisal of resource availability was made in February when the Four Year Development Programme was presented to the Economic and Social Board. Since then there have been several minor changes in the outlook for financial resources. These changes, which do not at all affect the substance of the following appraisal, are summarized in a Note on page 13.

1. The Development Plan calls for expenditures as follows (in K crores):

	1956-57	1957-58	1958-59	1959-60
Foreign Exchange	33.4	32.0	35.0	38.1
Kyats	24.6	28.0	29.0	31.0
Total	58.0	60.0	64.0	69.1

2. A substantial part of the needed financial resources for the full four year programme are not firmly in hand. Both domestic and foreign resources in sight are short of the amounts required, with the potential shortage of foreign exchange resources being most serious because of the need to finance a large import programme for anti-inflationary purposes. However, the foreign exchange resources which can reasonably be counted on make it possible to consider the proposed programme for planning purposes, provided there will be determination by government to make good any shortfall of foreign exchange resources by non-inflationary domestic financing.

3. It is necessary to distinguish clearly between the requirement for foreign exchange resources and the requirement for domestic resources. In the table above the costs of the proposed development programme have been divided between (a) foreign

exchange costs for imported machinery, equipment, and raw materials, and (b) domestic costs of labour and home produced materials. This division highlights the domestic costs, which can be very inflationary unless proper measures are taken to offset their inflationary potential. The fiscal projections underlying this appraisal of the availability of financial resources for the programme rely heavily on the sale of foreign exchange to the public as a major offset to inflationary pressures — i.e., on the provision of large quantities of imported goods to take up the excess purchasing power generated by capital expenditure. This means of combatting inflation adds to the foreign exchange resources required by the economy as a whole. In effect, it means that although foreign loans will be used principally to pay for imported capital goods, they are required (in the proposed magnitude) because a significant part of Burma's own foreign exchange earnings will be used to finance a higher level of consumption. Thus in part the projected borrowing from abroad is not so much for capital development as it is for anti-inflationary imports. The projected level of imports for private use is as follows:

1956-57	K 93.3 crores 1/
1957-58	K 98.2 "
1958-59	K 100.6 "
1959-60	K 103.6 "

These levels of imports for private use should be compared to imports of K 65 to K 70 crores in 1955-56, and a historical high of about K 80 crores in 1953-54.

4. As an alternative to borrowing abroad to increase consumption, and as a necessary measure if such huge import and distribution programmes can not be carried out efficiently, Government could

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1/ See Note on page 13.

increase its domestic revenues from usual sources, thus reducing inflationary pressures by transferring excess internal purchasing power generated by the Development Programme from the public to itself. However, the projections assume that this alternative will not be followed, and that, instead, there will be no important new taxes imposed and no important changes in existing tax rates. However, the projections do show an increase in Government revenue from (a) increased collections at present rates (e.g., customs and sales tax), (b) increased collections from better enforcement (e.g., income tax), and (c) somewhat greater domestic profits of State managed Boards and Corporations.

5. Assuming the above level of imports for private use, Table 1 shows the requirements of foreign exchange, the foreign exchange resources considered to be firmly in hand[1], and those that could be counted on with varying degrees of probability. (Details are shown in the Appendix. See Appendix Table A). If we consider only the resources firmly in hand, there would be a prospective four year deficiency of K 42 crores, a yearly average of K 14 crores. However, this deficiency will be reduced by utilization of the U.S. loan. It may also be reduced by an unknown amount of PL 480 funds; although the terms of future American legislation relating to the sale of surplus agricultural products are unknown, it is hoped that new U.S. laws will enable Burma to buy substantial quantities of needed commodities for kyats. The German credit is more uncertain; no projects included in the Four Year Programme have been approved for it. No account has been taken of another possible IBRD loan, or of other potential government-to-government loans; these possibilities would reduce the deficiency still further.

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[1] As of February. See Note on page 13 .

Table 1

Foreign Exchange Requirements and Availability 1/
(K crores)

	1956-57	Three Year Total 1957-58 - 1959-60
A. Requirements		
1. Imports for private use	93.3	302.4
2. Private non trade	8.0	24.0
3. Government Current	25.1	85.8
4. Government Capital	33.4	105.1
5. Total Requirements	159.8	517.3
B. Firm Availabilities		
1. Earnings from export of good and services	129.2	406.7
2. Reparations and Economic Cooperation	17.0	36.0
3. PL 480	10.0	-
4. World Bank	4.6	4.6
5. India Loan	-	20.0
6. USSR Exchange Credit	-	7.0
Total Firm Availabilities	160.8	474.3
C. Potential availabilities		
1. US Loan		12.0
2. Additional PL 480		30.0
3. German Credit Line		8.0
4. Total Potential Availabilities		50.0

1/ See Note on page 13 for recent changes.

It should be noted that reparations, the World Bank loan, the U.S. loan, the West German credit line, and the USSR exchange credit are relatively inflexible funds. This is also true in large part of the barter credit balances. They are tied either to projects or to countries, or both. This inflexibility limits the degree to which these resources can be counted on to meet total foreign exchange needs.

Because of the huge possible deficit of foreign exchange, it would not be prudent now to plan definitely on the expectation that all the listed sources of extraordinary foreign exchange, both firm and potential, will actually be available. It is more prudent to expect a forced reduction, below the level shown in the table, either of capital goods imports or of anti-inflationary imports for private use. Therefore planning should be on the assumption that each year at budget time Government will face the choice of trimming expenditures — current as well as capital — or of taxing away the excess purchasing power which may be in prospect.

6. A brief summary of projected kyat requirements and availabilities is shown in Table 2 below. (See Appendix Table B for details). This summary is necessarily based on the assumption that there will be no shortage of borrowed foreign exchange. For the four year period, the projections show a kyat deficit of K 33.9 crores, or an average of K 8.5 crores per year. A kyat deficit of this amount, financed chiefly by borrowing from the Union Bank and from the U.S. kyat fund, would mean an increase in the privately held money supply averaging in excess of 5 percent per year. Considering the current inflationary conditions in Burma, such a growth in the money supply would approach, and might exceed the limits required for economic stability. Clearly, any significantly larger increase must not be permitted, and the time phasing of the programme must avoid a disproportionately large injection of money in any one year.

Table 2

Kyat Requirements and Availabilities
(K crores)

	1956-57	Three Year Total 1957-58 - 1959-60
A. **Requirements**		
1. Total, including current kyat requirements of Boards and Corporations.	246.9	893.1
2. Total, excluding current requirements of Boards and Corporations	89.1	292.9
3. Of Which: Capital Programme	24.6	88.0
B. **Availabilities**		
1. Kyat receipts of Government, including Boards and Corporations	167.0	625.1
2. Sale of foreign exchange to the public	70.5	226.5
3. Net increase in private savings	5.0	12.0
4. Total Availabilities	242.5	863.6
C. Kyat Deficit (-)	- 4.4	-29.5

Table 2 shows the kyat deficit in its relationship to the total kyat requirements of the government complex, and also highlights the very high reliance which this model would place on sales of foreign exchange to the public. Such sales would average nearly K 75 crores per year; for comparison, sales of foreign exchange to the public in 1955-56 amounted to less than K 50 crores, with obvious inflationary consequences.

7. Availability of kyat resources for capital development can also be analyzed as shown in Table 3. The projections assume, among other things, a moderate but steady increase in the net cash surpluses of Boards and Corporations, and a very moderate increase in Government expenditure for current purposes. Both of these assumptions are rather optimistic. Government tax

and customs receipts are calculated on the assumption that there will be no change in rates.

Table 3

Kyat Resources for the Capital Programme
(K crores)

		1956-57	Three Year Total 1957-58 - 1959-60
1.	Revenue receipts of Government complex	106.9	327.7
2.	Of which (a) SAMB surplus	25.1	64.2
	(b) Surplus of other Boards and Corporations	7.4	31.8
	(c) Other (taxes, etc.)	74.4	231.7
3.	Less current expenditures of Union Government	87.6	276.0
4.	Equals current surplus of Government complex	19.3	51.7
5.	Miscellaneous capital, net	- 1.3	- 10.7
6.	Foreign exchange adjustment	- 2.8	+ 5.5
7.	Increase in private savings	5.0	12.0
8.	Total resources available	20.2	58.5
9.	Kyat resources required	24.6	88.0
10.	Uncovered deficit (-)	- 4.4	- 29.5

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8. To recapitulate, the picture which emerges is one in which there is (a) a potentially serious shortage of foreign exchange, and (b) a shortage of kyats which will be manageable only if sufficient foreign exchange can be obtained and converted into kyats through a large programme of imports for private use.

Consideration now must be given to the possible courses of action in case one of the more important potential sources of foreign exchange should fail -- for example, if any substantial proportion of the assumed K 30 crores of PL 480 funds were found not to be available.

There are only two alternatives. Since the bulk of the foreign exchange is required for anti-inflation purposes, any foreign exchange shortage must be compensated for by a cut in Government expenditures — current as well as capital — or by increasing Government receipts from taxation, customs, and higher earnings of State managed Boards and Corporations. It will not do simply to decide on an austerity import programme unless at the same time steps are taken to mop up the excess purchasing power which would otherwise have been spent on imports. Additional earnings of foreign exchange from (for example) rice exports in excess of those shown in the projections can not fully take the place of the assumed extraordinary foreign exchange resources. This is because after present stocks have been reduced to the necessary minimum, additional rice exports would create roughly K 3 crores of added purchasing power for every K 4 crores of additional foreign exchange earned.

Thus, it must be concluded that, in the absence of any substantial part of the extraordinary foreign exchange resources assumed in the projections (or in the absence of their efficient use to finance anti-inflationary imports), _the feasibility of the capital programme as presented will depend on Government's willingness to create its own kyat resources, chiefly through more taxation and increased earnings_.

9. Increased kyat resources can be secured by adopting price and operating policies for State managed Boards and Corporations designed to maximize their combined cash surpluses. The projections show some progress in this direction; the combined cash surpluses of Boards and Corporations other than SAMB (before taxes and depreciation charges) are assumed to rise from K 7.4 crores this year to an annual rate of K 13.1 crores in 1959-60. However, consideration should be given to the

possible future necessity of relying much more heavily on the cash surpluses of Boards and Corporations as a means of financing programmes in the public interest.

In this connection it is impossible to overemphasize the need for more efficient operation, implementation, and execution at all levels of all State enterprises. Elimination of waste and better implementation not only would help greatly to finance any likely kyat deficit, but would also create a sounder operating environment for the new and expanded projects in the programme. These comments apply equally to the quasi-public institutions, such as the Cooperative Societies and the new Joint Venture trading corporations. Efficient utilization of resources is an ever-present need, but it is especially urgent when using borrowed funds that represent a future claim on the production of Burma.

10. Thus, the Programme entails financial risks. The major risk within the limits of probability is that there will be a shortage of foreign exchange needed for offsetting the inflationary consequences of economic development. This is a risk worth taking if Government is willing, if necessary, to choose taxation and/or price policy of Boards and Corporations as alternative ways of offsetting inflationary pressures.

11. Forward estimates have been made of the changes which can be expected in the level and composition of Gross Domestic Product by the end of the four years covered by the Plan. These estimates indicate that the Gross Domestic Product in current prices may be expected to rise from K 500 crores in 1955-56 to K 618.7 crores in 1959-60, an increase of some 24 percent in four years, or 6 percent a year.

	Gross Domestic Product (In crores of Kyats)
1952-53	462.0
1953-54	459.0
1954-55	476.6
1955-56	500.1
1956-57 (projection)	518.5
1957-58 "	542.0
1958-59 "	579.4
1959-60 "	618.7

However, the above figures understate the actual increase in goods and services which are expected to be produced, because they reflect in moderate degree an anticipated price decline as a result of the accelerated import programme and other anti-inflationary measures. In real terms, adjusted for expected price changes, the Gross Domestic Product in 1959-60 will probably be 27 percent above the 1955-56 level. This increase in Burma's production will be augmented by additional resources from abroad.

12. Because of the natural rise in population, the per-capita increase in production is expected to be about 21 percent in four years, or 5 percent a year.

	Index of Per-Capita Output (1955-56 = 100)
1938-39	135
1952-53	92
1953-54	95
1954-55	98
1955-56	100
1956-57 (projection)	104
1957-58 "	109
1958-59 "	115
1959-60 "	121

13. A large part of the increase in total available resources is expected to result in higher consumption levels. Whereas in 1955-56 per capita consumption was slightly below the levels of recent years and about 30 percent below the pre-war level, a very substantial improvement is expected by 1959-60, raising it to 125 per cent of 1955-56. This will be the result not only of higher domestic production, but also of the policy of countering the inflationary threat of the development programme by very large programmes of imports for private use. However, consumption per capita in 1959-60 will still be well below pre-war levels.

	Index of Consumption per Capita (1955-56 = 100)
1938-39	144
1952-53	104
1953-54	105
1954-55	102
1955-56	100
1956-57 (projection)	108
1957-58 "	113
1958-59 "	119
1959-60 "	125

14. Capital formation, both public and private, during the period of the Four Year Plan will continue to utilize a relatively high proportion of total available resources, about 20 percent. In evaluating this figure, it is important to remember that this is a "gross" figure, which includes allowance for depreciation and some ordinary repair and maintenance. Furthermore, the resources devoted to capital formation will be derived to a large extent from foreign sources, such as reparations, World Bank loans, US loan, etc.

	Gross Capital Formation (In crores of Kyats)
1952-53	87.6
1953-54	101.1
1954-55	101.4
1955-56	96.5
1956-57 (projection)	103.0
1957-58 "	112.0
1958-59 "	124.0
1959-60 "	135.0

15. Forward estimates of Gross Domestic Product are necessarily based on a number of broad assumptions about future policy and performance. The major assumptions on which these projections depend are:

a. That the programme to restore law and order will be successful.

b. That the foreign resources necessary for the capital programme and the high level programme of imports for private use will be acquired and properly utilized.

c. That the Government capital programme itself will be carried out substantially as projected.

d. That economic and security conditions will be such as to encourage production and capital formation in the private sector, including agriculture.

NOTE

The discussion above and the tables which follow are based on projections made last February when the Four Year Plan was presented to the Economic and Social Board. In some details they should be changed in light of later developments. The principal developments are as follows:

(a) The estimated foreign exchange cost of the entire Four Year Programme has been reduced by about K 3 crores. However, at the same time the estimated kyat cost has been increased by about the same amount leaving no net change in the estimated cost of the entire programme. The tendency of this, of course, will be to ease the foreign exchange stringency somewhat, but to increase inflationary pressures. However, the change is too small to be of any practical significance at present.

(b) In recent months foreign exchange reserves held by the monetary authorities have declined, for reasons which are largely technical and which do not reflect any basic economic developments different from those which were expected in February. However, it was felt desirable to bolster the official reserves by drawing K 10 crores of the India loan this year. In the projections the first drawings was scheduled for 1957-58. This changes the time-phasing of the availability of foreign resources, but does not of itself alter the availability of financing over the life of the programme.

(c) On the other hand, in an all-out effort to reduce the abnormally high import prices of the past eighteen months, the authorized level of imports for private use in 1956-57 was raised substantially. It is too early to say whether this increase in authorized imports will result in actual imports significantly higher than those projected, or whether it will simply assure attainment of the projected level. In the former case, foreign exchange resources available for the later years of the Development Programme will be correspondingly reduced.

(d) The U.S. Loan of $25 million (plus about 9 crores in kyats) has been agreed; this cuts a potential K 12 crores off the foreign exchange deficiency projected in February. The outlook for some new PL 480 arrangement is brighter now than it was in February, but it appears that only a one or two year programme of 10 to 20 crores is in immediate prospect. As an interim measure (pending final U.S. legislation on PL 480) the U.S. has offered to sell K 3 crores of American tobacco and Indian textiles for kyats.

TABLE A

FOUR YEAR PROGRAMME - RESOURCES
Foreign Exchange Requirements and Available

(K 1,000,000)

	1956-57	1957-58	1958-59	1959-60	3 Year Total	3 Year Average
REQUIREMENTS						
1. Imports for Private Use	933	982	1006	1036	3024	
2. Private, Non-Trade	80	80	80	80	240	
3. Government - Current	251	262	291	305	858	
4. Government - Capital	334	320	350	381	1051	
5. TOTAL REQUIREMENTS	1598	1644	1727	1802	5173	
AVAILABILITIES						
1. Earnings from Export of goods and Services	1292	1297	1367	1403	4067	
2. Reparations and Economic Cooperation	170	120	120	120	360	
3. World Bank Loan	46	46	-	-	46	
4. PL 480	100	-	-	-	-	
5. Indian Loan	-	100	100	-	200	
6. USSR Exchange Credit	-	20	20	30	70	
7. TOTAL AVAILABILITIES	1608	1583	1607	1553	4743	
Surplus (+), or Uncovered Deficit (-)	+ 10	- 61	- 120	- 249	- 430	
As % of Requirements	-	4	7	14	8	
As % of Capital Programme Requirements	-	19	34	65	41	

TABLE B

FOUR YEAR PROGRAMME - RESOURCES
Kyat Requirements and Availabilities

(K 1,000,000)

	1956-57	1957-58	1958-59	1959-60	3 Year Total	3 Year Average
REQUIREMENTS						
1. Union Government, Current	876	900	920	940	2700	
2. SAMB, Current	619	627	685	728	2040	
3. Other Boards and Corporations, Current	959	1143	1331	1488	3962	
4. Loans	19	28	38	43	109	
5. Debt retirement (Foreign)	1	2	16	20	38	
6. Capital Programme (excluding foreign costs)	246	280	290	310	880	
7. Less - Payments abroad (excluding capital programme)	- 251	- 262	- 291	- 305	- 858	
8. Kyat Requirements (Total)	2469	2718	2989	3224	8931	
9. Union Government and capital programme kyat requirements (Line 8 minus Lines 2 & 3)	891	948	973	1008	2929	
AVAILABILITIES						
1. Union Government Current Revenues	744	750	774	793	2317	
2. Gross income of SAMB and other Boards and Corporations	1903	2079	2332	2551	6962	
Less: foreign exchange income						
(a) SAMB	870	851	899	932	2682	
(b) Others	114	122	130	134	386	
Equals: Kyat income of SAMB and other Boards and Corporations	919	1106	1303	1485	3894	
4. Miscellaneous Capital Receipts	7	10	13	17	40	
5. Net increase in private savings	50	40	40	40	120	
6. Net sale of foreign exchange to the public	705	738	748	779	2265	
7. Kyat Availabilities	2425	2644	2878	3114	8636	
UNCOVERED DEFICIT (-)	- 44	- 74	- 111	- 110	- 295	
1. As % of Requirements	2	2	4	3	3	
2. As % of Union Government and capital programme requirements	5	17	11	11	10	

Supporting Table 1 - Resources

Cash Budget of Government Sector

(K 1,000,000)

	1956-57	1957-58	1958-59	1959-60
A. RECEIPTS				
1. Revenue Receipts of Union Government 1/	744	750	774	793
2. SAMB Cash Surplus 2/	251	224	214	204
3. Receipts of Boards and Corporations	1,903	2,079	2,332	2,551
4. Misc. Capital Receipts 3/	7	10	13	17
5. Reparations	170	120	120	120
6. PL 480	100	-	-	-
7. World Bank Loan	46	46	-	-
8. Indian Loan	-	100	100	-
9. USSR Exchange Credit	-	20	20	30
10. TOTAL RECEIPTS	3,221	3,349	3,573	3,715
B. EXPENDITURES				
1. Union Govt. - Current	876	900	920	940
2. Boards & Corps. - Current	1,829	1,994	2,230	2,420
3. Capital Expenditures				
a. Development Programme	580	600	640	691
b. Capital Loans to Public - Net	19	28	38	43
c. Debt Repayment 4/	1	2	16	20
C. 1. TOTAL EXPENDITURES	3,305	3,524	3,844	4,114
2. Surplus (+) or Deficit (-)	- 84	-175	-271	-399

1/ Excluding tax or other contribution from Boards and Corporations and SAMB. See Supporting Table 4.

2/ Before tax or other contributions.

3/ BOC, BC, and SCB dividends.

4/ IMF.

Supporting Table 2 - Resources

Cash Consolidated Budget of the Union Government And Its Effect on Privately Held Money Supply

(K 1,000,000)

	1956-57	1957-58	1958-59	1959-60
1. Receipts of Union Government	3,221	3,349	3,573	3,715
2. Less: Receipts from Abroad	1,300	1,259	1,269	1,216
3. Equals: Domestic Receipts	1,921	2,090	2,304	2,499
4. Expenditures	3,305	3,524	3,844	4,114
5. Less: Payments Abroad	585	582	641	686
6. Equals: Domestic Payments	2,720	2,942	3,203	3,428
7. Cash Deficit with Private Sector	799	852	899	929
LESS				
8. Excess of Private Foreign Payments over Foreign Receipts 1/	705	738	748	779
9. Net change in Private Saving	50	40	40	40
	755	778	788	819
Increase in Private Money Supply	44	74	111	110

1/ Equivalent to Government sales of foreign exchange to the public.

Supporting Table 3 - Resources
Foreign Exchange Budget

(K 1,000,000)

	1956-57		1957-58		1958-59		1959-60	
	Government	Private	Government	Private	Government	Private	Government	Private
ceipts								
Rice	870		851		899		932	
inerals	12	70	13	74	14	82	9	95
imber	68	4	74	6	80	6	89	6
Other Commodities		184		193		198		184
Government Non-Trade	34		35		36		36	
Private Non-Trade		50		51		52		52
al Current Receipt	984	308	973	324	1029	338	1066	337
L 480	100							
eparations	170		120		120		120	
orld Bank	46		46					
ndian Loan			100		100			
SSR Exchange Credit			20		20		30	
al Receipts	1300	308	1259	324	1269	338	1216	337
ments								
overnment Capital	334		330		350		381	
overnment Current Imports	150		150		175		185	
overnment Debt Repayment	1		2		16		20	
overnment Non-Trade	100		100		100		100	
rivate Imports		933		982		1006		1036
rivate Non-Trade		80		80		80		80
al Payments	585	1013	582	1062	641	1086	686	1116
plus (+) or ficit (-)	+ 715	- 705	+ 677	- 738	+ 628	- 748	+ 530	- 779
Surplus or ficit	+ 10		- 61		- 120		- 249	
Surplus (+) or ficit (-) on rent account	+ 28		- 27		- 10		- 18	

Supporting Table 4 - Resources

Union Government Current Receipts

[illegible]

(K 1,000,000)

	1956-57	1957-58	1958-59	1959-60
1. Customs[1]	286	295	300	305
2. Taxes on Income (Private)Sector)[2]	138	115	125	135
3. Excise and Excise Duties[3]	74	84	88	88
4. Other Taxes and Duties[3]	63	66	71	75
4a. Other Revenue	183	190	190	190
5. Total Revenue, excluding SAMB surplus and tax receipts from Boards and Corporations	744	750	774	793
6. Current Expenditures[4]	876	900	920	940
7. Current Deficit (-) as carried in Tables	-132	-150	-146	-147

Reconciliation

	1956-57	1957-58	1958-59	1959-60
1. Total revenue, excluding SAMB surplus and tax receipts from Boards and Corporations	744	750	774	793
2. SAMB surplus	251	224	214	204
3. Tax receipts from Boards and Corporations [5]	12	23	26	36
4. Conventional Statement of Revenues	1,007	997	1,014	1,033
5. Current Expenditures	876	900	920	940
6. Conventional Surplus (+) or Deficit (-)	+131	+ 97	+ 94	+ 93

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[1] Increase over 1955-56 actuals (not shown) proportional to increase in projects imports.

[2] About K 1 crore per year increase over 1955-56 actuals, plus K 3 crores in 1956-57 to take account of windfall profits.

[3] CSED.

[4] 1956-57 budget. Later years, assumes 2 percent annual increase in current government requirements.

[5] From supporting Table 5.

Supporting Table 5 - Resources

Boards and Corporations, Summary

(K 1,000,000)

	1956-57	1957-58	1958-59	1959-60
1. Current Receipts	1903	2079	2332	2551
2. Current Expenditures	1829	1994	2230	2420
3. Balance, before taxes and Depreciation	74	85	102	131
4. Depreciation 1/	31	40	50	60
5. Taxes 2/	12	23	26	36
6. Balance, after taxes and depreciation	31	22	26	35

1/ 1956-57 from budget estimate; balance, a rough projection

2/ 1956-57 from budget estimate; balance, 50 percent of net after depreciation

February 1[illegible], 1957

SUMMARY OF FOUR YEAR PROGRAMME OF GOVERNMENT CAPITAL EXPENDITURES

1. The Four Year Programme of Government Capital Expenditures contains projects with a total cost of K 251 crores. Of this, about K 58 crores have been authorized in the capital budget for 1956-57. This means that, under the Four Year Programme, there would remain K 193 crores to authorise for the next three years.

	Kyat	Foreign Exchange	Total Costs
	(In crores of Kyats)		
1956-57	24.6	33.4	58.0
1957-58 through 1959-60	87.9	105.1	193.0
Total	112.5	138.5	251.0[a]

2. The tables in the following sections show the planned use of these funds, by agency and by specific project. They are based on previously approved plans, modified by agency submissions which have been reviewed by the Ministry of National Planning, and on international commitments.

3. Since agency submissions totalled far in excess of projected resources, it was necessary to curtail their proposals rather severely. Each major agency has had an opportunity to discuss its plans with the Ministry of National Planning and to evaluate the relative essentiality of its projects. Obviously, most of the agencies whose programmes were reduced are convinced of the essentiality of all of their project and will press for restoration of the curtailed funds.

4. The programme for 1956-57 must be considered firm, consisting as it does of the authorized capital budget for 1956-57, with the few adjustments that have been thus far approved. The programme for the remaining three years cannot be considered firm, and will require

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[a] This excludes government loans to private enterprise for capital development, which will total nearly K 13 crores in the four year period. See Agency Summary Table, attached.

careful scrutiny at the time each year's capital budget is being prepared. As far too much of the programmed expenditures are scheduled for next year and too little for 1959-60, rephasing will be necessary. At the budget time, this natural urge on the part of the agencies to press their projects as soon as possible will have to be contrasted with their ability to execute these projects efficiently, as well as the resources that are available.

5. Many of the projects included in this programme require more careful analysis of costs and benefits. Planning is a continuous process and between now and the time it is necessary to approve capital budget for these projects, they must be examined by engineers and economists and their essentiality reaffirmed or reappraised. Thus, the Four Year Programme should be considered flexible and subject to adjustment as changes in priorities or in cost estimates become apparent. Further, there may be changes in the resources available for capital expenditures which will make it necessary to revise the programme.

6. The cost of the Four Year Programme conforms to the maximum projected resource levels discussed in the previous section of this document. While minor adjustments may be necessary, it should be made clear that major additions to the Programme would be intolerable, both because of their inflationary effects and because they would go beyond the bounds of general feasibility. Any new projects or expenditures added to the programme would require other projects of equal cost to be reduced or shifted to future years.

7. A further caution must be raised concerning the relationship between the proposed capital programme and current operating budgets. Some of the proposed projects presume the availability of operating personnel, without which the capital project would be either useless or sharply affected. For example, the Paddy Production Increase Project will be impossible without an increase in the current

operating budget of the Agriculture Department, the agency which will be largely responsible for inducing the farmer to increase paddy production.

8. A comparison of this Four Year Programme with actual capital expenditures in the past four years shows many significant changes.

Government Capital Expenditures

(In crores of Kyats)

Agency Sectors	Expended 1952-53 to 1955-56		Programmed 1956-57 to 1959-60	
	Amount	Percent of Total	Amount	Percent of Total
Agriculture	11.7	6.9	34.7	13.8
Irrigation	2.1	1.3	5.2	2.1
Forestry	2.1	1.2	3.6	1.4
Mining	1.1	.6	14.1	5.6
Transportation	33.1	19.4	43.6	17.4
Communications	9.5	5.5	16.0	6.4
Power	18.5	10.8	27.7	11.0
Industry	19.5	11.4	16.6	6.6
Pyidawtha Grants	3.2	1.8	3.0	1.2
Building Construction	26.9	15.8	23.9	9.5
State Government	-	-	6.0	2.4
Social Services	4.8	2.8	12.7	5.1
Miscellaneous	2.0	1.2	5.9	2.4
Defence	36.4	21.3	38.2	15.2
Total	170.9	100.0	251.2	100.0

a. In the Four Year Programme, there is more emphasis on primary production, particularly in the agricultural agencies, which double their proportion of the total expenditures, going from 6.9 percent to 13.8 percent.

b. The mining agencies also show a large proportionate increase, from .6 percent in past four years to 5.6 percent in this programme.

c. Irrigation and Forestry agencies, while receiving more funds, are still a relatively small proportion of the total.

d. Industrial agencies will spend less, and their proportion of the total expenditures will drop from 11.4 percent to 6.6 percent.

e. The transportation agencies, while receiving more funds under the Four Year Plan than they expended in the past four years, will have their proportionate share of the total decreased, from 19.4 percent to 17.4 percent. However, this large programme reflects not only the importance of this sector, but also the relatively large volume of commitments already made by the transportation agencies.

f. Power, which represents a series of projects that are relatively firmly committed, receives about the same proportion of funds in the Four Year Programme, from 10.8 percent to 11.0 percent.

g. The agencies in the Social Services sector will receive far more funds in the next four years, and their proportion of the total expenditures will nearly double, increasing from 2.8 percent to 5.1 percent.

h. Building construction, while decreasing from 15.8 percent to 9.5 percent of the total, still remains quite high, primarily reflecting the addition of the Russian Projects.

10. In general, the whole programme bears the imprint of large commitments in transportation and power, and probably inadequate emphasis on agriculture, irrigation, forestry and minerals production. The programme balance will be continuously renewed by the Ministry of National Planning, in order to achieve optimum use of resources.

MINISTRY OF NATIONAL PLANNING

FOUR YEAR AGENCY SUMMARY TABLE OF GOVERNMENT CAPITAL EXPENDITURES

(In Millions of Kyats)

Agency	1956-57		1957-58 through 1959-60		Four Year Programme	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
riculture	76.55	31.60	270.21	113.48	346.76	145.08
R.D.C.	38.15	12.5	161.40	55.5	199.55	68.0
A.M.B. a/	27.5	11.6	71.01	38.28	98.51	49.88
terinary Department	0.7	0.4	3.8	1.0	4.5	1.4
riculture Department	10.2	7.1	34.0	18.7	44.2	25.8
rigation	9.88	3.58	41.85	12.47	51.73	16.05
rigation Department	9.88	3.58	41.85	12.47	51.73	16.05
restry	13.45	6.55	22.45	9.45	35.90	16.00
T.B.	11.3	6.5	9.1	5.5	20.4	12.0
rest Department	2.15	.05	13.35	3.95	15.5	4.0
ning	18.40	7.60	123.10	67.70	141.50	75.30
nistry of Mines	1.6	.5	30.6	4.0	32.2	4.5
M.D.C. a/	16.2	6.7	89.6	61.2	105.8	67.9
ectorate of Mines	-	-	.6	.6	.6	.6
logical Department	0.6	0.4	2.3	1.9	2.9	2.3
nsportation	146.830	92.425	289.200	188.415	436.030	280.840
lways Board	62.9	34.1	82.6	34.5	145.5	68.6
.T.B.	21.73	11.35	46.0	31.74	67.73	43.09
pping Board	5.1	4.1	34.1	32.3	39.2	36.4
rways Board	8.8	8.375	35.0	32.275	43.8	40.65
il Aviation Department	6.5	1.2	15.1	6.4	21.6	7.6
rine & Lighthouse Department	3.2	2.0	14.2	10.6	17.4	12.6
rd of Management for the rt of Rangoon	38.6	31.3	57.2	37.1	95.8	68.4
port Programme	-	-	5.0	3.5	5.0	3.5
munication	26.24	10.68	133.14	51.36	159.38	62.04
communications Department	15.34	8.28	32.74	19.96	48.08	28.24
ways Department (Roads)	10.2	2.0	96.8	29.9	107.0	31.9
al Department	0.7	0.4	3.6	1.5	4.3	1.9
er	90.2	66.1	186.9	111.5	277.1	177.6
B.	68.7	47.7	163.4	95.3	232.1	143.0
S.B.	21.5	18.4	23.5	16.2	45.0	34.6
stry	47.6	32.9	118.3	79.7	165.9	112.6
a/ (includes Tile rick Factory)	47.6	32.9	118.3	79.7	165.9	112.6

(In Millions of Kyats)

Agency	1956-57		1957-58 through 1959-60		Four Year Programme	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Grants	5.0	-	25.0	-	30.0	-
Construction	37.4	11.3	201.8	97.7	239.2	109.0
ment (Bldgs.)	3.2	0.7	5.4	1.1	8.6	1.8
	17.9	6.5	113.0	47.6	130.9	54.1
	12.0	2.8	0.5	-	12.5	2.8
(Other Depts.)	4.3	1.3	10.0	3.3	14.3	4.6
Projects	=	=	69.6	44.3	69.6	44.3
's Office	-	-	3.3	1.4	3.3	1.4
Services	15.83	8.8	111.345	54.65	127.175	63.45
	8.33	5.2	44.705	24.2	53.035	29.4
of Education	2.7	1.1	29.7	11.3	32.4	12.4
of Technical	2.0	1.2	8.7	4.8	10.7	6.0
	2.0	0.7	6.1	3.3	8.1	4.0
Board	0.2	-	0.6	-	0.8	-
Sanitation and Board	-	-	2.6	2.0	2.6	2.0
Promotion Board	.6	.6	.75	.75	1.35	1.35
Labour	-	-	1.1	0.4	1.1	0.4
on and Local	=	=	14.9	6.7	14.9	6.7
Social Welfare	-	-	2.19	1.2	2.19	1.2
	11.25	8.60	47.60	34.80	58.85	43.40
Department	2.4	1.7	5.6	3.6	8.0	5.3
	1.9	1.9	4.4	4.4	6.3	6.3
Stationery and	0.3	0.2	2.8	2.4	3.1	2.6
Department	.9	.9	2.15	2.15	3.05	3.05
	0.5	0.5	2.65	2.65	3.15	3.15
Board	0.35	0.25	=	=	0.35	0.25
Management Bd.	2.3	1.7	-	-	2.3	1.7
Research Institute	1.0	0.6	3.1	2.0	4.1	2.6
	*	*	-	-	*	*
	0.1	-	1.5	1.1	1.6	1.1
of Land	.5	.45	5.0	3.5	5.5	3.95
Commercial Bank	0.5	0.2	1.5	0.4	2.0	0.6
	-	-	9.8	4.6	9.8	4.6
for adjustments*	0.5	0.2	68.5	31.4	69.0	31.6
Total ex-defence	498.63	280.135	1630.3	820.6	2129.0	1100.8
	102.0	66.6	280.0	186.6	382.0	253.2
Total	600.63	346.735	1910.3	1007.825	2511.0	1354.0

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for missing agencies and for potential increase in expenditures for law order activities.

(In Millions of Kyats)

gency	1956-57 Total	1956-57 Foreign Exchange	1957-58 through 1959-60 Total	1957-58 through 1959-60 Foreign Exchange	Four Year Programme Total	Four Year Programme Foreign Exchange
following loan funds also required:						
[illegible]						
- Loans to miners	2.0	1.0	14.1	7.8	16.1	8.8
- Housing loans	-	-	3.0	-	3.0	-
- Loans to millers	2.0	2.0	6.0	6.0	8.0	8.0
- Industrial Development loans (including Hire-Purchase)	15.0	10.0	85.0	70.0	100.0	80.0
Total Loan Funds	19.0	13.0	108.1	83.8	127.1	96.8

[illegible] 50,000 kyats.

General

1. The L.A.P.C. Report provides the basic framework for the agricultural programmes included in the Four Year Plan. As indicated in the Report, there are tremendous possibilities for increasing agricultural production in Burma. The first step, of course, is to restore prewar levels of paddy production. This will involve almost a one-third increase, in paddy outturn. For other crops, production is at or near prewar levels, However, with the establishment of a number of new industries there is an urgent need for supplying raw materials, such as longer staple cotton, jute, tobacco and sugar cane. Furthermore, with limited foreign exchange resources it is necessary to expand production of deficit crops such as groundnut, other oilseeds, coffee, tea, coconuts and export crops such as beans, pulses, cotton and rubber.

2. The delays in increasing paddy production have in part been the result of insecurity but also reflect the lack of an organized programme to increase paddy production. So long as rice prices were high and SAMB was not organized to ship out more than 1.5 million tons of rice annually there was no urgent pressure to increase paddy production. In fact, with the development of increasing unsold surpluses beginning 1953, resistance to expanded output objectives emerged. Now, with larger sales and increasing demand at lower rice prices, and with steady improvement in SAMB operations, it is possible to think in terms of shipping prewar levels of rice exports. From the standpoint of foreign exchange requirements it is clear that rice exports must be increased. The resource estimates which support the Four Year Plan provide for increases in rice exports from K 87 crores in 1956-57 to K 93 crores in 1959-60. Allowing for a possible gradual decline in price this would mean an export requirement of at least 2.5 million tons in 1959-60.

3. The paddy expansion programme was started in 1956 and over half of the total capital expenditures planned in the agriculture sector are directly related to this programme. The emphasis in a number of programmes has been shifted to give high priority to the expansion of paddy production. For example, in the irrigation programme, while surveys are being carried out on major irrigation projects such as the Mu and Yamethin, priority in actual construction has been given to those projects which will increase paddy production quickly. Top priority is being given to the repair of the Kabo Dam which provides irrigation for 300,000 acres of paddy land. Projects such as the Irrawaddy East Bank embankment, the Labutta Project, the Thongwa Island project and others in the Delta have been given priority over the long-range multi-purpose projects in the Dry Zone. Similarly, work on mechanisation is now concentrated on meeting the needs of the paddy expansion programme. Tractors included under the Four Year Plan are intended primarily for use in land clearing and ploughing in conjunction with paddy projects. District Workshops and Tractor units are concentrated in the main paddy producing areas. Major emphasis in the fertilizer programme is being given to use of fertilizer on paddy nurseries. The Agricultural Department is carrying out a large programme for construction of godowns to be used for storage and distribution of improved seed. SAMB is giving high priority to better storage, transportation and milling of paddy and rice.

4. In the long run, however, the difficulties of a one-crop economy are obvious. Efforts are being made to diversify agricultural production so as to provide raw materials for new industries, to reduce imports of deficit crop and to expand production of export crops. Priority is given to longer staple cotton, sugar, groundnuts and jute, crops which can be economically produced in Burma and which will effect an

appreciable saving of foreign exchange. The LAPC Report shows that there are also good possibilities for expanding production of other crops. To develop these possibilities the programme provides for expanded research activities and for the initiation of field testing and demonstration centres for crops such as soya beans, fruits, vegetables, grains and fodder crops.

5. In the past the effective application of such research and experiments has been limited by the lack of channels of communication to the cultivators. To increase the effectiveness of the expanded research and experiment programmes, provision is made for an expanded agricultural extension system involving training of village-level workers at circle farm schools, facilities for demonstrations to farmers, transportation facilities for extension workers and preparation of leaflets, posters and other audio-visual materials. Work of the Agriculture Department will be closely co-ordinated with the commodities projects of the LRDC.

6. During the period of the Four Year Plan Government will concentrate on the following broad targets:

   a. To increase rice production by 1.4 million tons through expansion of acreage, increased yields and reduction of losses in storage, processing and handling. This involves almost a one third increase in paddy production, bringing it back to slightly more than prewar.

   b. To diversify agricultural production through increases in production of such crops as cotton, oilseed, jute, sugar cane, with an accelerated research programme to provide the basis for increasing production and introduction of new crops.

   c. To build up an adequate staff of trained agriculturists required to sustain a high level of agricultural development.

Principal targets are shown in the table below.

	Prewar	1955-56	1959-60 Target
Rice			
Acreage (1000 acres)	12,832	10,263	12,000
Paddy Production (1000 tons)	7,426	5,776	7,200
" " (tons per acre)	.57	.56	.60
Export Surplus (1000 tons of rice and rice products)	3,300	1,600	2,500
Groundnuts			
Acreage (1000 acres)	808	821	1,200
Production (1000 tons)	181	204	300
Cotton (M5)			
Acreage	-	50,000	400,000
Production (360 lb)bales)	-	10,000	120,000
Jute			
Acreage	-	10,000	150,000
Production (tons)	-	3,200	50,000
Virginia Tobacco			
Acreage	-	2,000	6,000
Production (viss)	-	550,000	2,100,000

Land and Agricultural Development Corporation

Paddy Expansion Programme

7. Exports of rice and rice products must bring in the bulk of the foreign exchange resources for the development programme. With declining rice prices it became obvious that unless export volumes can be increased substantially over that of the past several years, foreign exchange receipts from rice exports will fall short of programmed levels.

8. Consequently, the Four Year Plan gives top priority to the Paddy Expansion Project. This calls for bringing into cultivation at least 1.2 million acres of paddy land formerly

cultivated, but now lying unused. Yields will be increased on existing land through use of improved seed, adoption of improved cultivation methods, increased use of fertilizers and increased protection from flood damage, insects, diseases and pests. Processing and storage losses will be minimized through SAMB programmes for storage, milling and pest control measures.

9. During the current year, significant progress has been achieved, with over 200,000 acres of land under reclamation and substantial yield increases in adjoining areas as a result of flood protection and drainage works. During the first year of the programme efforts are being concentrated on the smaller projects which can be handled with locally available labour. In the succeeding years, however, the work will include an increasing number of larger projects involving more careful engineering and use of heavy earth moving equipment. Also, large areas of heavy jungle growth will have to be cleared and a fairly substantial resettlement programme will be required to supply sufficient labour for reclamation and subsequent cultivation of the land.

10. Results this year indicate that together with reclamation of abandoned lands, substantial improvements are being made in the yields of fields surrounding the reclaimed areas. Improvements in flood protection and drainage required for reclamation of low lying areas often produce large increases in the yields of adjoining lands which were formerly damaged by annual floods. Furthermore, the extra incomes generated by the paddy expansion projects can be expected to help in gaining more solid popular support for government in areas of marginal security. Clearing out of jungle areas makes insurgent guerilla operations more difficult. Improved security in turn permits cultivators to intensify cultivation practices and

increase yeilds. Hence apart from the direct increase in production of about half a ton of rice and rice products per acre from reclaimed areas, an additional increase of about the same amount per acre of reclaimed land can be expected from existing paddy land in such areas.

11. The average cost per acre of reclamation is estimated at about K 50. SAMB profits on the additional rice production will about pay for the capital cost of the programme in the first year. Gross domestic product in the agriculture sector will be raised by about twice the amount of the investment.

12. In addition to reclamation, the paddy expansion programme provides for distribution of 2500 to 5000 tons of fertilizer annually on a subsidized basis for demonstration purposes, for the installation of pumps to increase fall and spring sown (mayin) paddy and for the establishment of emergency seed beds for replanting flooded paddy lands.

13. The Agriculture Department is cooperating with the paddy drive through its programmes for expanded extension services, distribution of pure seed, pest and disease control, and mechanization.

The expected approximate increase in outturn of rice and rice products, in thousand tons, is as follows:

	1957	1958	1959	1960
1. Adoption of improved methods	20	40	60	100
2. Use of selected seeds	43	135	270	360
3. Fertilizers	60	80	100	100
4. Protection from Insects and Pests	50	60	70	80
5. Protection from floods and Inundations				
a. Emergency Nurseries	12	12	12	12
b. Embankment Works	20	40	60	80
6. Increased cultivation	100	250	400	600
Total	305	617	972	1312

Exportable Current Surplus of Rice and Rice Products

(In Million Tons)

1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
1.6	1.8	1.9	2.2	2.6	2.9

Estimated Expenditures for the Paddy Project are as follows:

(In lakhs of Kyats)

Land to be rehabilitated	1956-57	1957-58	1958-59	1959-60
1. Repairs to embankments and drainage channels	75	130	115	95
2. Jungle clearing, including subsidy	36	54	54	72
3. Loans for cattle and equipment purchase	80	120	180	180
4. Administration	3	4	4	5
Pumps	4	4	4	4
Seed beds	2	2	2	2
Fertilizer	13	26	26	26
Total	213	340	385	384

Note: 1. Excludes seasonal loans of 60 lakhs, 90 lakhs, 90 lakhs and 120 lakhs each year.

2. Funds for the purchase of 60 crawler tractors were provided for in the Agricultural Department Budget 1956-57.

3. Funds for construction of paddy seed godowns also in Agriculture Department Budget.

Groundnut

14. Burma has been importing about 30,000 tons of groundnut oil per year. In order to make the country self-sufficient in this type of edible oil, the government has initiated a programme to expand the area under groundnut cultivation from 821,000 acres in 1955-56 to nearly 1,200,000 acres by 1959-60, an increase of approximately 50 percent. At an estimated four baskets of seed per acre, this will require 20,000 tons of seed for the 400,000 additional acres. The added acreage even at the relatively low yield of 500 lbs. per acre will produce 100,000 tons of groundnuts which at an extraction rate of 30 percent will process into 30,000 tons of oil, the amount of annual imports. Average yields can and should be appreciable, increased by improved methods. Supplies of oilseed cake for export and/or for domestic use will also increase by 50 percent or more.

15. Of the acreage now under cultivation, 600,000 acres are in Ya and 200,000 acres in Kaing lands. The planned acreage increases will come largely from the development of 50,000 acres in the Kachin, Shan and Kayah States and double cropping on 250,000 additional acres along the river banks in the Delta. Some of this double cropping will be done in areas where ARDC has paddy increase projects, thus making possible the combined use of machinery. For other areas, however, provision had to be made for tractors to prepare the land for groundnut production. Provision will also be made for encouraging the establishment of processing facilities in newly developed growing areas.

16. Loans in the form of seed are made to cultivators. Improved varieties to replace present seed in the Ya crop area are being developed on selected farms in Magwe, Myingyan, and Mandalay. Seed farms for the Kaing areas now cover 22,500 acres. There is need here to develop earlier maturing varieties. Since the

Kaing crop is harvested in April and May, the carryover of seed through the rainy season until planting time presents a difficult storage problem. Experiments are being made with air-tight tins and moisture proofed sealed bins. Experiments are also being made on soil enrichment on some of the poorer land by application of river silt.

17. The Plan provides K 3.6 million for establishment of seed farms, storage godowns, and purchase of tractors and equipment.

Cotton

18. The main cotton varieties in Burma, namely Wagale and Mahlaing No. 3, are not suited to the existing and contemplated textile mills in Burma. Replacements of these varieties by Mahlaing No. 5 type of cotton, from which 20 count yarn can be spun, has been undertaken by the L.R.D.C., in close cooperation with the Agricultural Department and the Cooperative Department. By 1959-60 the present area of 400,000 acres of inferior quality cotton is to be entirely replaced by Mahlaing No.5, with a total output of 120,000 bales of cotton lint. The IDC currently estimates cotton requirements at 75,000 bales for the mills now operating or planned for operation by 1959-60. The indicated balance of about 45,000 bales can be exported at prices higher than those received for Wagale. The programme is thus essentially one for the up-grading of cotton presently grown rather than a production increase programme.

19. The programme for expansion of M5 cotton will require expansion of the central seed farms at Mahlaing and the establishment of several other major seed farms for production of foundation seed. The Four Year Plan provides funds for this expansion. Provision is also made for establishment of 32 new ginneries with baling presses, weighing equipment and grading facilities, and for a number of seed storage godowns at District Centres.

20. Distribution of pure seed of the approved variety and the establishment of field controls to prevent use of cross-pollinated seed present difficult problems in up-grading and perpetuation of quality. This involves introduction to farmers of new and better cultivation practices by means of trained extension fieldmen. Until M5 seed is universally used, constant and close supervision and field inspection will be required. LRDC, in cooperation with the Agriculture Department, is developing a programme for more intensive extension work in connection with model plantations to serve as demonstration farms. Sufficient M 5 seed is now available for the 100,000 acres to be planted this year. Plans are in hand to double the M5 acreage to 200,000 acres next year and to reach the goal of 400,000 acres in 1959.

21. A programme to introduce more stringent grading and classification of cotton is also planned. Under this programme trainees will be sent abroad for study, and grading and classification equipment will be obtained. LRDC is also undertaking experimental field tests to develop suitable strains of long staple irrigated cotton. A total of K 2 million is provided in the Four Year Plan for this project.

Jute

22. Burma needed about 26 million gunny bags in 1955-56 and will need about 40 million in 1959-60. The operating capacity of the jute mill is 24 million gunny bags per year, requiring the jute produced on 150,000 acres. It will be necessary therefore to expand jute cultivation from about 10,000 acres in 1956-57 to 150,000 acres in 1959-60. An annual savings of K 28 million in foreign exchange can be made through successful implementation of this programme.

23. Since jute is a new crop for most cultivators in Burma, an intensive programme of demonstration is planned, together with distribution of seed and fertilizer, installation of pumps, and construction of godowns. Much of the reclaimed land along the embankments now under construction for the Paddy Expansion Project is well suited to jute and can be put into jute production. Tractors and pumps will be provided to allow for early ploughing before the monsoons. The programme provides K 5.4 million for this project.

24. Progress on the jute programme to date has been disappointing, largely as a result of inadequate extension work and field supervision. Until recently LRDC had limited its activities to distribution of loans and purchase of jute seed and fibre. During the first years of the programme, large amounts of seed were purchased from specially designated seed producers, but distribution of the seed lagged because of delays in setting up an adequate field staff. The cultivation of jute requires special skills for which a training programme is now being provided. Furthermore, jute is a very labour-intensive crop. The season for harvesting and retting conflicts with the transplanting of paddy in some areas; hence each farmer can cultivate only a few acres. Since much of the potential jute land is in areas of relative labour shortage, it may be necessary for LRDC to revise its schedule for achieving targets, particularly since the capital and labour resources may be more effectively used for the production of other crops.

Virginia Tobacco

25. Acreage under this crop in 1956-57 was 4,000. It is intended to increase the acreage to 6,000 by 1958-59, so that by 1959-60 Burma will produce about 12 lakhs viss of cured virginia tobacco, enough to make 10,000 lakhs of cigarettes annually. This quantity is expected to take care of domestic demand for cigarettes.

26. The programme for building curing barns is proceeding according to schedule and should meet the need for at least 1000 such barns by 1958-59. Building loans of K 6000 per barn are issued through Local Welfare Committees to procos or to private individuals.

27. By the beginning of 1956-57, loans had been made for construction of 264 barns. So far this year 47 barns have been constructed and loans are being issued for 53 more, or a total of 100. In addition, 236 barns have been built by private enterprise without Government loans. The programme calls for construction of 500 additional barns and drying, ageing and storage facilities in the next two years.

28. Tobacco growing and flue curing require specialized skills. For extension work with cultivators and supervision of curing barns at least 1000 trained personnel are needed. At present 355 men trained at the four centres (Mandalay, Pakokku, Henzada and Langkho) are doing extension work in the fields combined with operation of curing barns. Of the 214 men now being trained, 118 are receiving LRDC stipends while the remaining 96 are presumably financed by private enterprise.

29. Because of their interest in quality tobacco, the cigarette manufacturers are cooperating with LRDC in this programme. In addition to the four LRDC nurseries, the industry has a number of seed farms for distribution of seed and seedlings. In order to produce varieties of the colours, textures, aromas, etc. required by industry for blends demanded by the trade, much research and experimentation is still required. This too calls for close cooperation between Government programmes and private enterprise. To assist cultivators in acreage expansion, LRDC has furnished 7 tractors and 40 rotary hoes. The Four Year Plan provides K 3.5 million for construction of curing barns and storage facilities and purchase of equipment.

Kabo Dam Project

30. The Kabo weir which serves as a structure to divert water from the Mu River into the Shwebo and Ye-U Canals was partly destroyed by a major flood which occurred between 19 and 21 October 1956. The two canals provide irrigation for approximately 300,000 acres of land in the Shwebo District in Northern Burma.

31. The extent of the damage included the destruction of the Shwebo Canal Headworks Structure, 4 gated under sluices, each 40 feet wide, and approximately 80 feet of the 455 foot long spillway weir. The Ye-U canal headworks structure, the two 30 foot wide gated under sluices adjacent to it and 375 feet of spillway weir suffered only minor damage.

32. In order to permit the operation of the irrigation project during the current year, it was necessary to construct a coffer dam around the structures that were destroyed, to make minor repairs to the structures on the Ye-U (left) side of the river and to excavate a temporary by pass canal with a simple intake structure to connect with the Shwebo Main Canal. The temporary work must be completed before the start of the monsoon rains in May 1957. With this temporary work the project can be operated with comparatively minor loss of efficiency.

33. The permanent structures, consisting of the Shwebo Canal headworks, under sluices and section of weir can be replaced during the monsoon season and the following dry season with only minor interference with irrigation operations.

34. The data for a detailed estimate of cost of these temporary repairs and replacement of permanent structures is not available at this time, but it is roughly estimated that the cost will be in the neighbourhood of K 10 million, of which about K 4 million would be foreign exchange.

35. Due to the necessity for very quick action to make repairs to the weir, the Government has already issued letters of intent to two foreign firms currently engaged on other work in Burma, to handle the Kabo project. These firms are TAMS for engineering services and Ed. Zublin A.G. (Duisberg) for construction.

Demonstration Farms

36. A 400 acre Experimental Farm has been started by Israeli experts at Kyaukme in the Shan States. The purpose of this farm is experimentation on diversified crops for both rainy and dry seasons. Emphasis will be on fertilizer application, rotation, cultivation practices, seed variety tests and moisture conservation on such crops as maize, soya, groundnuts, sorghum and cotton in the rainy season, and wheat, barley and oats in the dry season. Important features of the work at Kyaukme are the training of Burmese counterparts and understudies, and demonstration of techniques to cultivators in the areas.

37. Experimental Farms are also being planned with a team of Russian experts:

a. A State Farm of 5,000 acres, in an area not yet selected but probably in the Shan States or Upper Burma, for production of long-staple cotton under irrigation.

b. Demonstration plots of 5 acres or so each in

  i. Upper Burma at Meiktila, Mandalay, Kyaukse, Shwebo and Magwe are being set up by Russian agronomists for experimental work on cotton: cultivation methods, soil treatment and seed improvement;

  ii. Lower Burma at Hmawbi, Gyogon (ARI), Gyobyu and Myaungmya, by Russian agronomists, for demonstration of cultivation practices and improved varieties.

38. In addition, Russian technicians are planning a model mechanized farm in the Mandalay area, an irrigation project in the

Yamethin and Myingyan districts, and a Soil Bureau and Soil Laboratory in Rangoon.

39. Similar plans are under consideration for the establishment of model demonstration farms to be operated by American and Japanese farmers. This would serve to test the feasibility of large-scale cotton and rice production methods as practiced in USA and the application of skills in vegetable and paddy cultivation of the Japanese. A total of K 5.6 millions has been provided in the Four Year Plan budget for these Experimental and Demonstration farm projects.

Rubber

40. This is a long term project to replace the present trees with new improved seedlings. It is estimated that 20 years will be required to replace the present acreage of 160,000 with higher yielding trees. Present production of 12,000 tons a year is expected to increase to 24,000 tons in 1975-76, 36,000 tons in 1979-80, and 60,000 tons in 1987-88.

41. Under the programme high yielding clonal seed will be imported and planted in LRDC nurseries to provide grafting material for replanting low yield trees. Subsidies or loans will be provided for replanting. Steps will also be taken to encourage reopening of abandoned estates and planting in new areas.

Fisheries

42. This project aims at additional production of 60,000 viss of dried prawns and 80,000 viss of fish for inshore fishing and distribution of carp fry, Talapia fingerlings, etc. The foreign exchange savings on all these is estimated at K 179 lakhs or half of the present value of imports by 1959-60. A hatchery has been established at Hlawga Lake to provide fingerlings for distribution. A total of K 900,000 is provided for expanding facilities at Hlawga.

Project

43. This project aims at producing 700,000 viss of pure milk to feed the people of Rangoon and gross revenues by 1959-60 are estimated at K 2 millions.

In addition to the milk from the government dairy farm, it is planned to establish a milk recombining plant to utilize cheap dry powdered milk ingredients for making sterilized milk. The programme also provides for expansion of present sterilization facilities. A total of K 950,000 is provided for the recombining plant and expansion of sterilization facilities.

Coconuts

44. The project provides for planting 2 million coconut trees by 1959-60. About half of these will be planted in the Tenasserim area, 40 percent along the Arakan coast and 10 percent in the Delta. The programme provides for establishment of government estates with a view toward ultimately turning over these estates to the workers under cooperative management. K 5 million are provided for acquisition of land, construction of facilities, purchase of equipment for these estates, and purchase of seed.

Mechanization

45. The programme provides for purchase of equipment and spare parts and establishment of repair and maintenance facilities required to take care of an expanded tractor fleet which will be used for various LRDC projects. (See Agriculture Department for further details.)

Irrigation Projects

46. Funds are provided for surveys of the Kyetmauktaung, Mu and Yamethin projects by Russian technicians. These are long range projects which can be constructed only if additional resources become available. (For other irrigation projects see Irrigation Department).

Other Projects

47. The Plan provides for a number of other minor projects such as the development of the Cocos Islands, expansion of coffee, tea, medicinal herbs, pulses, soya beans and sugar cane and encouragement of cattle breeding.

C. State Agricultural Marketing Board

48. The SAMB Four Year Plan is based on the assumption that foreign exchange income from rice and rice products must increase from a minimum level of K 87 crores in 1956-57 to K 93 crores in 1959-60. This would mean an export of about 2.5 million tons in 1959-60. If the production targets are exceeded by 1959-60, lower prices might be required to sell the larger surplus. Since SAMB was able to ship out almost 2 million tons with present facilities, with the additional planned investment SAMB will be able to export at least 2.5 million tons in 1959-60.

49. The Plan also aims at reducing costs by reducing physical losses at all stages from procurement, milling, storage and handling so as to maximize SAMB profits.

50. The Four Year Plan provides for improving the efficiency of the SAMB in procurement, milling and transportation of rice. The programme also provides for replacement of temporary storage facilities and the institution of pest control measures. Another feature of the programme is to reduce handling costs by introducing mechanical handling of equipment and to improve communications.

51. The major item of expenditure will be for the survey and construction of an additional rice loading wharf near the present Ahlone Wharf and to study the need for a third rice wharf. Although the volume of rail borne paddy and rice being shipped from Rangoon is now well below prewar levels,

the planned expansion of paddy production will eventually increase it to at least prewar levels. For rail borne paddy, the advantages of direct loading are quite clear, since this permits early inspection of rice at the godowns and eliminates the problem of tying up lighters loaded with rejected rice. Furthermore, direct loading from railroad cars eliminates the double handling which is now necessary for rail borne rice which is loaded by lighter. Since a large part of the rice will come into Rangoon by river, further studies are required to determine how many additional wharves will be required by 1959-60. Wharf capacity should be sufficient to handle at least prewar volumes, export of which should be achieved within the next four or five years. The cost of idle capacity for one or two years would be relatively small as compared to the losses incurred if capacity were too small.

52. A major factor in the deterioration of grain which SAMB currently handles is the amount of dirt, chaff, grit, etc. Each year about 40,000 tons of dirt is transported and stored along with the paddy. To eliminate this problem, SAMB plans to obtain 60 paddy cleaning and grading plants to be used in connection with the new paddy storage facilities. Cleaning and grading of paddy will not only reduce storage losses, but will also enable millers to mill higher grades of rice and reduce milling losses. It is anticipated that if the initial installations prove to be conomical, the programme will be greatly accelerated in later years.

53. With the increase in exports, the present milling capacity available is inadequate. Most mills in operation also have difficulties in supplying higher grades. It is therefore considered important that steps be taken for the early increase of milling capacity. The absence of sufficient

milling capacity in the port towns has caused considerable difficulties during the last few years, as it was not always possible to move sufficient stocks from upcountry mills at short notice. Rangoon loadings are particularly affected and it is unlikely that these difficulties will be overcome unless the milling capacity in the port-towns is considerably expanded, particularly since it is anticipated that shipments will continuously expand during the next four years.

54. It is desirable that a part of this additional milling capacity be controlled directly by the Board. This would allow for a certain flexibility in the procurement programme, as Board controlled mills could then be used to mill at short notice such qualities as are from time to time needed to supplement arrivals from other mills. These mills could also be of value in establishing milling rates and determining outputs.

55. At present, the SAMB owns one small German rice mill at Setsan, Upper Pazundaung. Another small American mill at Rangoon and one German mill at Kyaukpyu are nearing completion. Plans are under consideration for increasing the capacity of the American mill.

56. In order to bring additional milling capacity into operation quickly, it is proposed to rehabilitate two foreign owned mills which are at present lying idle. These are the Anglo-Burma Rice Company mill at Pazundaung which has a daily capacity of 125 tons of white rice and 125 tons of boiled rice, and the Ellerman Arracan Company mill at Kanaungto with a capacity of 800 tons per day. A survey is to be carried out in the near future to determine the technical feasibility of reopening them and to determine a fair price for the properties.

57. While the activation of these two mills would relieve the shortage of milling capacities at Rangoon, both mills are of prewar construction and are not designed to produce the best quality rice. In the long run, therefore, it is desirable to establish some additional mills of modern design. Plans were drawn up for the construction of new mills in Bassein, Moulmein, Akyab and Rangoon but are being deferred until the old mills have been rehabilitated.

58. Insufficient pest and rodent control measures have resulted in losses of over £ 1 million sterling annually. SAMB therefore plans to obtain dusting, spraying and fumigating equipment together with necessary sheds and office accommodation.

Veterinary Department Projects

59. Veterinary Instruction Project

A veterinary course of training of three years duration leading to the B.V. Sc. degree is the main object of the project. Permissible candidates to undergo this training are all who have passed I. Sc. from any University. Ten to 15 students are expected to complete the course each year from 1962 onwards. One building each for anatomy (practical and dissection), operative surgery and a hostel to house 140 students would be erected. Staff quarters will also be built.

60. Veterinary Research Institute

The Four Year Plan provides K 3.5 million for this project. Four laboratory complexes will be built, namely a Bacteriological Complex (including Animal Quarters), a Diagnostic Complex (including post mortem and cold store), a Virological Complex and an Avianized Complex. On the completion of these laboratories, the additional anthrax and vaccine that will be produced will halt the increasing rate of mortality of cattle,

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Agriculture Department

61. The need for a greatly expanded agricultural research and extension system in Burma has been recognized for a long time, but steps to strengthen this programme have been delayed because of shortages of personnel and funds. In the 1956-57 budget, funds for facilities were not increased sufficiently. Furthermore, there is a serious shortage of experienced trained personnel, especially of subject-matter specialists. The Four Year Plan provides for completing the construction of the Agricultural Research Institute at Gyogon, the establishment of a research centre at Kyaukse and a branch station at Maymyo. The Plan also provides for obtaining two teams of Japanese technicians to initiate an intensive programme of applied research aimed at adapting Japanese methods of production to conditions in Burma, and training Burmese agricultural technicians in practical application of research techniques, especially in such fields as rice, vegetables and horticulture.

62. Since provision was made in the 1956-57 budget for increasing the staff of extension workers, important progress has already been made. Approximately 1,300 extension workers are now assigned to village tracts, especially in the areas of crops with high priority in the Four Year Plan. Training courses at the 8 Circle Farm Schools are turning out from 400 - 500 village level extension workers per year to supply the total workers needed, estimated on the basis of one extension fieldman for each 4 or 5 village tracts. These fieldmen will serve as the channel of communication between the Government with its improvement programmes and the cultivator whose understanding and cooperation is essential to the Plan's success.

63. A serious drawback to the full utilization of the time and talent of district and township agricultural officers, as well as of village level extensive workers, is the lack of adequate transportation facilities. The Four Year Plan provides for purchase of light pickup trucks, bicycles and outboard motors to enable extension workers to cover more territory. Such facilities will greatly multiply their usefulness and result in substantial crop increases.

64. Since the re-establishment of the Agricultural Department after the war, the Department has carried out, within the limits of its allotted funds, the expansion of agricultural education as one of its principal duties. With the increased funds made available under the Four Year Plan the Department proposes to expand its programme for teaching at the Central Farm Schools, agricultural shows and fairs at Pagoda festivals, conducting instruction tours of leading cultivators to the central farms, distribution of leaflets and planting demonstration plots on cultivators' land.

65. The Department has obtained Government approval for an expenditure of K 3 million over the four years of the Plan on agricultural education. In this connection, indents have been made for 4 lakhs worth of instruments and other instructional facilities for more effective training at the Central Farm Schools, and also for audio-visual units for training and instruction of villagers. These purchases, made under Japanese reparations, will greatly facilitate the work of the extension fieldmen.

Insect and Pest Control

66. Substantial losses are sustained on each year's crop from insect pests and plant diseases. Accordingly, provision to the amount of K 1.9 million was made for an expanded control

programme to be developed during the Four Year Plan. Research is being conducted and plans for improvement by use of foreign technicians are being considered. These call for equipment such as sprayers and dusters and training in their use.

Fertilizer

67. Experiments on fertilizer application have demonstrated that the use of Ammonium Sulphate, Ammonium Phosphate and Bone Meal on paddy, and of Ammonium Sulphate on sugar cane, jute and other crops results in appreciably increased production. Further studies, particularly on farmers' plots, will have to be made on such subjects as exact soil needs and rates of application for different crops. Enough is known to justify a high place for field tests on fertilizer use in the agricultural increase programme. K 1.2 million at the rate of K 300,000 per year has been budgeted for fertilizer and crop cutting experiments under the Four Year Plan.

68. Imported fertilizer costs from K 400 to K 640 per ton. At this price it is unremunerative for many crops. At present fertilizer is used for sugar cane, paddy nurseries and jute. Total imports in 1956 amounted to about 3000 tons, of which about 2000 tons were used for paddy nurseries, a threefold increase from previous years as a result of demonstrations. In order further to expand use of fertilizer on paddy nurseries, LRDC is distributing 2500 tons of fertilizers at 50 percent of cost for demonstration purposes.

Seed Storage and Distribution

69. The Agricultural Department regards the storage and distribution of seed as one of its most important problems. Proper storage and controlled distribution is essential, if Burma's agriculture is to benefit from plant breeding and varietal improvement programme. Without proper facilities, pure

strains of proved worth cannot be perpetuated. The Department has undertaken a programme for up-grading of seed stocks and now needs adequate storage facilities so placed as to be accessible to the cultivators.

70. Accordingly, an amount of K 6.1 million has been included for this purpose in the Four Year Plan. The four year project planned by the Department calls for 100 godowns at district and township centres, supplemented by suitable arrangement for the village tracts. Plans for the current year are to construct fourteen godowns, under an arrangement with NHB, in appropriate centres of Burma.

Commodity grading

71. Most crops in Burma are purchased as "fair average quality" and buyers often make price adjustments for inferior grades but generally do not pay an adequate premium for quality. The result has been that cultivators have almost no incentive to select and grade their products. Furthermore there are no uniform standards of weights and measures.

The prewar Marketing Section of the Department of Agriculture started some useful work in standardization of weights and measures but the work was discontinued with the war. Recently the work has been reactivated and is being expanded to cover grading as well as weights and measures. The Four Year Plan provides K 1.9 million for purchase of grading and testing equipment. The FAO has supplied the services of an expert to assist in this programme.

Mechanization

72. In addition to the purchase of 60 crawler tractors for land clearing in connection with the Paddy Increase Programme for which special budgetary provision of K 5.7 million was made, the Department is studying the feasibility of purchasing some

brush cutters of the kind successfully used in Ceylon and in Latin American countries. Major items in expenditure of budget funds for mechanization under the Plan will be for the purchase of additional tractors, equipment, pumps, sprayers and dusters.

73. The Department's Agricultural Mechanization Training School is expanding its facilities for the training of tractor drivers and maintenance repair men. Ten service and maintenance depots have been established, primarily to service LRDC projects. Continuing problems are storage of spare parts, implements, tools, mobile repair units, trained engineers and supervisory personnel.

74. Fellowships for special study and technical training abroad are being offered by FAO and the Colombo Plan. In view of the urgent need for trained personnel, arrangements should be made to send men with proved aptitudes to appropriate foreign institutions or agencies. Subjects for such training are: workshop practices; economics of mechanization; field selection, operation, application and quality of work of tractor-drawn implements; Diesel engines; workshop organization, procedures, records, stores and equipment; water lifting devices; sources of water supply; etc. These problems require prompt attention to assure progress on the agricultural improvement programmes already begun. Assistance has been received from Ford Foundation on a library and from Colombo Plan on an equipment repair training shop for the Training Centre. The Four Year Plan provides a total of K 6.4 million for the mechanization project.

75. Plans have been readied for the establishment of a Machine and Tractor Station at Mandalay under direction of a Russian expert and a Burmese counterpart. The purpose of the M.T.S. is to conduct experiments for the development of types of

machinery and tractors suitable for use in agricultural improvement and expansion in Middle and Upper Burma. Kyats 5 million have been provided for the project.

Soil Conservation

76. As recommended by the LAPC report a new soil conservation division is to be established in the Department of Agriculture to cope with the problem of soil erosion which affects almost of half of the total land area of Burma. The most serious problem areas are in the groundnut belt in Pakkoku, Magwe and Minbu where dangerous desert formation is already underway, and in the hill areas where uncontrolled taungya cultivation is denuding large areas of forest lands.

The Four Year Plan provides K 2.6 million for purchase of soil conservation equipment required for extensive demonstrations of soil conservation techniques, protection of watershed areas and control of taungya cultivation.

F. Irrigation Department

Overall Programme

77. Four types of projects have been included in the Four Year Plan of the Irrigation Department: irrigation, flood protection and drainage, pump irrigation and river training. The programme covers both Upper and Lower Burma, special emphasis being laid on projects which will bring about immediate increases in paddy production. Care has also been taken to ensure an equitable distribution of projects based on manpower and available resources. The distribution of projects is also in accordance with the recommendations made by the Union Land and Agricultural Planning Commission and other special demands made by the Welfare Committees.

78. Some of the projects have been under consideration for several years going back to prewar and have been investigated in detail. But much valuable data already collected was lost during the war and the insurrection period following, and investigations and surveys must be repeated afresh. Some projects of recent origin have had all preliminary work completed and are ready for construction. Projects of this type are Zidaw Dam in Meiktila District, Yenatha Canal in Mandalay District, South Man Canal in Minbu District, Nyaungyan-Minhla Tank in Meiktila District, Teindaw-Gamonseik Embankment in Tharrawaddy District, Labutta Island Reclamation Scheme in Myaungmya District, and North Kawa Drainage in Pegu District.

79. It has become necessary for the Department of Irrigation to change its role from that of a caretaker, quasi-commercial agency, as in prewar days, to that of a fully developed, service conscious, public utility, in order to fulfill its function in the attainment of a Welfare State. Until recently, the Department has been occupied mostly with maintenance and operations of the existing irrigation, flood protection and river training works. To make possible the agricultural expansion programme envisaged in the Four Year Plan, new fields of activity for the Department must be opened up. The diversion systems on which most of the existing irrigation works are based are not sufficiently large or dependable. Hence the need for providing additional storage reserveirs from which a more constant and dependable source of supply may be obtained.

80. The work load of the Department has increased considerably. It is anticipated that the projects included in the Four Year Plan will further increase this work load. It is proposed to solve this by using both force account and contract work to implement the programme. The proportion of the work load

to be disposed of by contract will be determined to a large extent by the limitations of manpower of this Department. A plan for the re-organization of the Department is being drawn up to enable it to execute the projects in the Four Year Programme. The Four Year Plan provides for a total of K 51.7 million for the Irrigation Department. This represents a sharp increase over previous years, when expenditures averaged about one fourth of the newly planned levels.

Irrigation Projects

81. Reconnaisance land use surveys completed by the LAPC indicate that there are about 25 million acres of land in Burma which can ultimately benefit from irrigation or drainage works. At present some 1.7 million acres or about 10 percent of the total cultivated acreage is under irrigation. Preliminary plans have been drawn up to irrigate an additional 2 million acres. Under the Four Year Plan, irrigation schemes covering about 100,000 acres will be completed. These consist of relatively minor projects, a number of which have already been started. Some of these minor projects are improvements on existing works.

82. The Plan also provides for surveys, investigations, and designs for a number of relatively large irrigation projects. In addition to the Yamethin, Mu and Kyetmauktaung projects, which are currently under survey by Russian experts under LRDC supervision, six dam projects which could irrigate an area of 270,000 acres will be surveyed. Extensive improvements are also planned on the Yenatha and South Mau Canal systems to benefit an area of 28,000 acres.

Flood Protection and Drainage Projects

83. In Lower Burma over 1.2 million acres of land must be protected against floods. Nearly half of this land is now precariously

protected by small village dykes. The Irrigation Department has been taking over a number of these dykes and building them up to safe standards. The Irrawaddy East Side Embankment Scheme was started in 1939, but due to war and insurrection the work was not finished. Under the Four Year Plan the Irrigation Department plans to complete about 60 percent of the remaining work. This will provide adequate flood protection for about 300,000 acres. A similar work is also planned from Kwinkauk to Lemyetnha, which will benefit 5000 acres.

84. The Henzada project is designed to change the course of the Irrawaddy river at Henzada, in order to prevent the erosion which is threatening to destroy the town.

85. In addition to flood protection, considerable areas in the Pegu District and the Irrawaddy Delta require improved drainage. At present there are over 7 million acres of land in Burma which can benefit from drainage work. The Four Year Plan provides for three drainage projects, the Labutta, Thongwa Island and North Kawa Projects. The Labutta project is a pilot scheme for reclaiming over one million acres of paddy land affected by salt water intrusion. The plan is to construct embankments to keep out salt water and drainage canals and sluices to drain off excess water. The Thongwa Island project will serve as a pilot project to determine the feasibility of using pumps for drainage during flood periods and for irrigation in the dry season. The North Kawa project is a simple drainage project to improve drainage on 10,000 acres below the Pegu-Sittang Canal.

86. Experience has indicated that embankment and drainage projects have favourable cost-benefit ratios. For this reason a large number of small projects of this kind were constructed privately in the past by landlords and cultivators. Since Land Nationalization there is no incentive for private investors to carry on

this work. Beginning with the current year LRDC has taken over responsibility for financing a large number of these projects under the Paddy Expansion Scheme.

87. One of the drawbacks of extensive diking and drainage work is that, with the large volume of water confined to the rivers by these works, the flood levels increase with consequent danger of large scale floods. To prevent this, more and more careful hydrologic and engineering studies will be necessary as additional areas are brought under embankment protection.

Pump Irrigation

88. The LAPC report indicates that there are not less than 1,600,000 acres of land which lie close to perennial streams with lifts less than 300 ft. suitable for pump irrigation. Most of this land is in the dry zone where yields are low and uncertain because of sparse rainfall and shortage of irrigation facilities. As a result, irrigated tracts in the dry zone are over-populated and large areas of unirrigated land remain fallow. In order to develop these fallow areas and to permit double cropping, two pilot schemes have been started at Myingyan and Pakkoku with the aid of Israeli experts. These pilot projects will provide detailed cost and benefit data on which the development of additional lands may be determined.

Stream Training

89. This work was first started on the slopes of the Pegu Yomas in order to train hill streams to carry down logs from the forests. It was subsequently found that in addition to its original purpose the stream training protected large areas from flooding and permitted controlled silting to reclaim low lying areas. Under the Four Year Plan this work will be extended to more streams in the Myitmaka valley and the Sittang Valley.

Agency: LAND AND RURAL DEVELOPMENT CORPORATION

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreig Exchan
1. Paddy Expansion	21.3	5.6	34.0	11.4	38.5	10.4	38.4.	6.9	132.2	34.3
2. Groundnut	0.6	0.2	1.1	0.3	1.1	0.3	0.8	0.2	3.6	1.0
3. Jute	0.9	0.3	1.3	0.8	1.6	1.1	1.6	1.1	5.4	3.3
4. Cotton	0.5	0.2	0.5	0.3	0.5	0.3	0.5	0.3	2.0	1.1
5. Onions	-	-	0.3	0.1	-	-	-	-	0.3	0.1
6. Coconuts	0.4	0.1	1.0	0.6	1.6	0.8	2.0	1.0	5.0	2.5
7. I.F.I.	0.3	0.1	-	-	-	-	-	-	0.3	0.1
8. Milk	0.05	0.05	0.3	0.1	0.3	0.2	0.3	0.2	0.95	0.55
9. Fisheries	-	-	0.3	0.1	0.3	0.1	0.3	0.1	0.9	0.3
10. Tobacco	1.4	0.8	1.7	1.2	0.4	0.2	-	-	3.5	2.2
11. Rubber	0.2	0.15	1.1	0.5	1.3	0.5	1.5	0.5	4.1	1.65
12. Mechanization	0.6	0.2	1.1	0.3	1.4	0.4	1.5	0.5	4.6	1.4
13. Kyetmauktaung)										
14. Thitson (Yamethin))	-	-	4.0	2.0	5.0	3.0	-	-	9.0	5.0
15. Mu River)										

Agency: **AGRICULTURAL & RURAL DEVELOPMENT CORPORATION** (Contd.)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
16. Israeli	0.1	-	.3	.2	-	-	-	-	.4	.2
17. Demonstration Farm Projects (Russian, etc.)	1.2	0.6	1.0	.5	1.5	1.0	1.5	1.0	5.2	3.1
18. Kabo Dam Rehabilitation	10.0	4.0	2.0	1.0	-	-	-	-	12.0	5.0
19. Other Minor Projects *	0.6	0.2	1.5	1.0	3.0	2.0	5.0	3.0	10.1	6.2
Total	38,15	12.5	51.5	20.4	56.5	20.3	53.4	14.8	199.55	68.0

* Provides for miscellaneous projects requiring small amounts of capital, such as coffee, pulses, Popa Afforestation, animal husbandry, minor irrigation and miscellaneous construction.

Agency: **STATE AGRICULTURAL MARKETING BOARD**

Projects Name or Description	1956-57 Total	1956-57 Foreign Exchange	1957-58 Total	1957-58 Foreign Exchange	1958-59 Total	1958-59 Foreign Exchange	1959-60 Total	1959-60 Foreign Exchange	TOTAL Total	TOTAL Foreign Exchang
1. New Rice Mill and Reopening large mill *	1.0	0.9	2.0	1.0	2.0	1.0	1.0	1.0	6.0	3.9
2. Rice Milling Research	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.5	0.4
3. Storage	12.0	0.7	15.4	4.0	6.7	2.6	6.7	2.6	40.8	9.9
4. Cleaning & Grading Plants	1.4	1.3	4.8	4.0	4.9	4.0	4.9	4.0	16.0	13.3
5. Lighterage	8.2	6.5	2.5	2.0	-	-	-	-	10.7	8.5
6. Transport & Communications	0.6	0.4	0.2	0.1	0.4	0.3	0.4	0.3	1.6	1.1
7. Buildings	2.2	0.8	0.7	0.2	0.7	0.2	0.7	0.2	4.3	1.4
8. Ahlone Wharves (Rice) Construction No.2 Survey No. 3 & 4	1.5	0.6	5.0	3.0	4.0	3.0	4.0	2.0	14.5	8.6
9. Mechanical Handling	0.2	0.2	0.8	0.6	1.0	0.8	1.0	0.8	3.0	2.4
10. Pest Control	0.3	0.1	0.55	0.22	0.13	0.03	0.13	0.03	1.11	0.38
Total Exclusive of loans	27.5	11.6	32.15	15.22	19.93	12.03	18.93	11.03	98.51	49.88
11. Loans to Millers	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	8.0	8.0
Total	29.5	13.6	34.15	17.22	21.93	14.03	20.93	13.03	106.51	57.88

* Includes study of need for new mill at Rangoon, after large private mills have been placed in operation.

Agency: VETERINARY DEPARTMENT

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Veterinary Instruction	0.4	0.2	0.5	0.2	0.1	0.1	-	-	1.0	0.5
Veterinary Research Institute	0.3	0.2	1.3	0.2	1.3	0.4	0.6	0.1	3.5	0.9
Total	0.7	0.4	1.8	0.4	1.4	0.5	0.6	0.1	4.5	1.4

Agency: **AGRICULTURE DEPARTMENT**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Agricultural Research Institute	.2	.1	1.6	.9	2.0	1.0	2.0	.8	5.8	2.8
Pest and Disease Control	.4	.2	.5	.3	.5	.3	.5	.3	1.9	1.1
Agricultural Education	.6	.4	.8	.5	.8	.5	.8	.5	3.0	1.9
Pure Seed Storage and Distribution	1.3	.4	1.6	.5	1.6	.5	1.6	.5	6.1	1.9
Commodity Grading	.4	.2	.5	.3	.5	.3	.5	.3	1.9	1.1
Mechanization	.4	.2	2.0	1.8	2.0	1.8	2.0	.7	6.4	4.5
Soil Conservation	.4	.2	.6	.2	.8	.2	.8	.2	2.6	0.8
Fertilizer & Crop Cutting	.3	*	.3	*	.3	*	.3	*	1.2	-
M.T.S.	.5	.4	1.5	1.0	1.5	1.0	1.5	1.0	5.0	3.4
Crawler Tractors	5.7	5.0	-	-	-	-	-	-	5.7	5.0
Other Projects	-	-	2.1	1.8	1.8	1.2	.7	.3	4.6	3.3
Total	10.2	7.1	11.5	7.3	11.8	6.8	10.7	4.6	44.2	25.8

Less than half a lakh.

Agency: IRRIGATION DEPARTMENT

(In Millions of Kyats)

ojects Name or Description	Location	1956-57		1957-58		1958-59		1959-60		TOTAL	
		Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Kyetmauktaung	Myingyan	1.00	0.70)	-	-	-	-	-	-	1.00	0.70
Yamethin Project	Yamethin	0.80	0.60)	A.	R. D.	C. Bu	dget			0.80	0.60
Mu Project	Shwebo	0.20	0.10)							0.20	0.10
Trans Samon	Kyaukse	0.58	0.05	-	-	-	-	-	-	0.58	0.05
Bomba-se & Kadin Tank	Yamethin	0.60	0.30	-	-	-	-	-	-	0.60	0.30
Kyakan	Myingyan	0.10	-	-	-	-	-	-	-	0.10	-
Nyaungyan Minhla Tank	Meiktila	0.60	0.30	0.10	-	-	-	-	-	0.70	0.30
Kinda Canal	Kyaukse	0.30	0.10	0.30	0.15	-	-	-	-	0.60	0.25
Nyaunggaing Myaing	Prome	0.10	-	-	-	-	-	-	-	0.10	-
Irrawaddy East Side Embankment		0.60	-	1.50	0.25	1.50	0.25	-	-	3.60	0.50
Labutta	Myaungmya	0.10	-	0.20	0.03	-	-	-	-	0.30	0.03
Kwinkauk to Lemyetnha	Henzada	0.10	-	0.45	-	-	-	-	-	0.55	-
Zidaw Dam	Meiktila	0.90	0.55	2.30	0.50	2.5	0.5	1.0	-	6.70	1.55
Alaungsithu	"	1.50	0.20	-	-	-	-	-	-	1.50	0.20
Thameth . Dam	Myingyan	0.10	-	0.40	0.10	1.50	0.60	2.0	1.0	4.00	1.70
Thaungtha Dam	Myingyan	0.10	-	0.80	0.20	-	-	-	-	0.90	0.20
Navin Dam	Prome	0.20	0.10	1.50	0.70	2.0	0.70	2.2	0.50	5.90	2.00
Thongwa Island	Maubin	0.20	0.18	0.40	0.10	0.30	0.10	-	-	0.90	0.38
Henzada		1.20	-	4.00	1.00	2.00	0.50	-	-	7.20	1.50

(Contd. on next page)

Agency: **IRRIGATION DEPARTMENT** (Contd.)

(In Millions of Kyats)

s Name or Description	Location	1956-57		1957-58		1958-59		1959-60		TOTAL	
		Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
mp Irrigation	Myingyan & Pakokku	0.60	0.40	1.20	0.80	1.2	0.80	0.8	0.60	3.80	2.60
matha	Mandalay	-	-	-	-	0.40	0.15	1.6	0.40	2.00	0.55
uth Mar Canal	Minbu	-	-	-	-	-	-	0.30	0.80	0.30	0.08
amin Dam	Magwe	-	-	-	-	-	-	-	-	0.10	-
ngyi River Kinywa Dam	Kyaukse	-	-	0.20	0.05	1.30	0.25	2.20	1.20	3.70	1.50
ungyu Dam	Katha	-	-	-	-	0.60	0.10	1.40	0.40	2.00	0.50
ttang Valley	Toungoo	-	-	-	-	0.50	0.05	0.50	0.05	1.00	0.10
rth Kawa Drainage	Pegu	-	-	-	-	0.20	0.02	0.80	0.02	1.00	0.04
itmakha Valley	Tharrawaddy	-	-	-	-	-	-	0.50	0.05	0.50	0.05
indaw-Gawwonseik I	"	-	-	0.50	0.05	-	-	-	-	0.50	0.05
" " II	"	-	-	-	-	-	-	0.60	0.22	0.60	0.22
Total		9.88	3.58	13.95	3.93	14.00	4.02	13.9	4.52	51.73	16.05

Agency: IRRIGATION DEPARTMENT (Contd.)

(In Millions of Kyats)

Projects Name or Description	Location	1956-57		1957-58		1958-59		1959-60		TOTAL
		Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total
20. Pump Irrigation	Myingyan & Pakokku	0.60	0.40	1.20	0.80	1.2	0.80	0.8	0.60	3.80
21. Yematha	Mandalay	-	-	-	-	0.40	0.15	1.6	0.40	2.00
22. South Mar Canal	Minbu	-	-	-	-	-	-	0.30	0.80	0.30
23. Ngamin Dam	Magwe	-	-	-	-	-	-	-	-	0.10
24. Zangyi River Kinywa Dam	Kyaukse	-	-	0.20	0.05	1.30	0.25	2.20	1.20	3.70
25. Daungyu Dam	Katha	-	-	-	-	0.60	0.10	1.40	0.40	2.00
26. Sittang Valley	Toungoo	-	-	-	-	0.50	0.05	0.50	0.05	1.00
27. North Kawa Drainage	Pegu	-	-	-	-	0.20	0.02	0.80	0.02	1.00
28. Myitmakha Valley	Tharrawaddy	-	-	-	-	-	-	0.50	0.05	0.50
29. Teindaw-Gawwonseik I	"	-	-	0.50	0.05	-	-	-	-	0.50
30. " " II	"	-	-	-	-	-	-	0.60	0.22	0.60
Total		9.88	3.58	13.95	3.93	14.00	4.02	13.9	4.52	51.73

FORESTRY AND TIMBER DEVELOPMENT UNDER THE FOUR YEAR PLAN

A. General

1. Forests are one of the most valuable natural resources of Burma. Proper exploitation of this resource can add significantly to the national product and foreign exchange earnings. The Four Year Plan provides for:

   a. increasing the production of timber and forest products;

   b. developing industries which will more **fully utilize** Burma's forest products; and

   c. research and testing of new methods to increase forest yields.

2. Before the war, Burma's exports of timber and forest products were large, amounting to 6 percent of all exports in value. Since the war, this production has shrunk to 3 percent, the obvious resultant of war damage and neglect and the difficulties created by the lack of law and order in large parts of the forest area.

	Prewar Average (1937-41)	Postwar Average (1951-56)
Teak (cubic tons)	216,000 1/	38,000 1/
Hardwoods (cubic tons)	41,000 1/	16,400 1/
Cutch (weight tons)	3,856 2/	594 2/
Lac Cwt.)	51,492 2/	4,071 2/

Source: 1/ Quarterly Bulletin of Statistics (CSED) - Second Quarter, 1956.
2/ LAPC Report page 475.

3. The restoration of the timber industry to a reasonable level of production and export is difficult because of the geographically wide-spread activities that are involved and because of the long time it takes before actions initiated in the forest areas are reflected in the timber production and export stages. For example, a girdled teak tree must remain standing for at least three years before it is cut. It takes another three years to transport it to the mill.

B. Special Objectives

4. The annual production of teak, Burma's most valuable timber, is still far below prewar. The prewar average production was over 450,000 cubic tons, compared with only 166,000 cubic tons produced in 1955-56. Non-teak wood production has increased slightly, from a prewar average of 501,000 cubic tons to nearly 544,000 cubic tons in 1955-56. Under the Four Year Plan, teak production is expected to increase to 324,000 cubic tons and non-teak wood to 530,000 cubic tons by 1959-60.

5. The girdling of teak trees, which is the essential first step in their extraction, reached a very low level in 1950-51, only 17,136 trees. By 1954-55, because of continued insurrection and disorder, this had increased to 44,272 trees, still far below the level required to support even the relatively low level of timber production of that year. In 1955-56, a vigorous programme of tree girdling, accompanied by the improvement of law and order, made it possible to increase girdling to 211,000 trees. During the next four years, this record should be sustained and even improved, making possible greatly increased timber production in the future.

	Planned girdling of Teak Trees (in thousands)
1956-57	220
1957-58	220
1958-59	230.
1959-60	230

6. The State Timber Board has been testing the use of mechanical extraction equipment. This has been stimulated by the shortage of elephant power, since the STB owns only 1,000 animals compared with the 6,500 animals that were used before the war. The results of the tests have been quite favourable and the Board has

decided to procure three more units to add to the one unit which has been tested. Each unit, which consists of 5 tractors, 5 trucks (15 ton) with trailers, 1 SKAGIT loading machine, 1 auto grader (formaking road) and 1 mobile crane, has a rated annual capacity of 30,000 tons of round logs. Additional power vans will also be procured under the plan. At each point in the long and complicated process through which logs must go before they can be manufactured into timber, the Four Year Plan provides for large and continuing increases.

	Input into Streams (cubic tons)	Outturn at Main River Depots (cubic tons)	Arrivals at Milling Stations (cubic tons)
1956-57	258,000	192,000	192,000
1957-58	316,000	202,000	202,000
1958-59	365,000	240,000	240,000
1959-60	385,000	254,000	254,000

7. The State Timber Board now has seven timber mills in operation.

Mill No.	Location	One-Shift Capacity
1	Kemmendine, Rangoon	12,000
2	Ahlone, Rangoon	16,000
3	Dunneedaw, Rangoon	40,000
4	Kemmendine, Rangoon	35,000
5	Kemmendine, Rangoon	30,000
6	Dunneedaw, Rangoon	40,000
7	Moulmein (under construction)	30,000
	Total	203,000

The arrivals at milling stations already exceed the existing capacity of 173,000 tons (192,000 tons arrived in 1956-57), and some of the additional logs may be used to build up stocks of logs at the mills, which are dangerously low. However, because of the need to earn foreign exchange, the STB has inaugurated two shift operations at Mill No.4, which has a rated capacity of 35,000 tons. If this is successful, two shift operations will be introduced in other mills as increased log arrivals make this possible. Because of this possibility for expanding production by using the existing mills more intensely, no provision has been made in the Four Year Plan for the construction of new timber mills. If the plan for two-shift operation does not succeed, it will be necessary to add at least one new timber mill to the Four Year Plan by 1959-60 at a total cost of approximately K 3.6 millions.

8. Non-teak production, althugh higher than prewar, must also be increased in the next four years. The Four Year Plan provides for this increase by making available funds for the development of woods in new forest areas, by research in the use of non-teak woods and by encouraging private operators and traders to develop domestic and foreign markets. The improvement of transportation facilities, including the provision for more goods wagons and barges as well as harbour improvements, should add materially to Burma's capacity to extract and ship timber.

9. The future development of Burma's forest resources depends in part on improved knowledge of how to use these resources scientifically.

Burma has in the past had to rely largely on forestry research data from abroad, notably from Dehra Dun, India. Since Independence, the need for a National programme addressed to Burma's forestry problems has been keenly felt. On the basis of recommendations made by an FAO expert, plans were drawn up for an independent Forest Research Institute. The Institute will conduct research on protection, maintenance, growth, improvement of the forests and regulation of yields and methods of extraction. Research is also planned on timber products of economic value. Budgetary provision in the Four Year Plan for the establishment of the Forest Research Institute is a total of K 7.2 million, of which K 3.5 million will be foreign exchange. The Institute will be staffed by pscialists trained abroad, especially in Australia, India and the United States.

10. Provision is also made for a total of K 800,000 to be spent under the Four Year Plan on research anddevelopment of such economically important forest and timber products as mangrove, turpentine and lac. Prewar export earnings from lac ranged from K 2.5 lakhs to K 40 lakhs annually. In recent years Burma has imported lac, mainly from India, to the amount of K 1.3 lakhs. The potential of this and other forest products as earners of foreign exchange is sufficient to justify development investments.

Special problems in connection with the rehabilitation of the timber industry are extraction of logs and transport to streams. Formerly the chief power source in moving logs was the elephant. Normal breeding and training of elephants was interrupted by the war and its aftermath, resulting in a shortage even with timber cutting far below prewar levels. Experience with fully mechanized extraction on a limited number of units have proved its economic and practical feasibility and justify the provision in the Four Year Plan for expansion of the practice.

11. Up till now extraction of selected hardwoods has been profitable only from easily accessible areas, with the result that remoter regions remain untapped. Large stocks of commercially important species like Pyinkado, Padauk, In-Kanyin, Thitya-Ingyin, etc., are available in those areas. If suitable fairweather access roads are constructed and certain existing forest department cart roads are metalled, the improved net-work will not only enable the extraction of unworked species of the existing Commercial Supply Working Circles,

but also allow extension of these Circles into hinterlands resulting in very much increased production of hardwoods. Improvement in communication would allow mechanized extraction for greatly increased production per unit area. Teak extraction from these hardwoods circles would also benefit from such improvement.

12. The anticipated additional annual output of hardwoods if this project is implemented is estimated to be over 160,000 tons, with resultant increases in revenue, employment, and national income. It is also anticipated that the investment cost will be more than paid back by the increase of royalty alone in about 10 - 12 years.

13. At least 225 miles of forest roads are to be improved or constructed at a cost of K 150 lakhs, of which only K 85 lakhs is proposed up to end of 1959-60 for security and other reasons. This project will be reviewed every year. The plan calls for investment in access roads and equipment such as tractors, mobile workshops, loading machines, trucks, trailers, autograders, power saws and jeeps with trailers at a total expenditure of K 7.5 millions. Sufficient milling capacity exists for processing the additional logs to be provided by such new extraction equipment. The State Timber Board reports that there are now enough trained operators and mechanics to support the higher level of operations anticipated.

14. The plan for the increased use of Burma's forest resources also includes studies of the development of a group of related industries that fabricate and process wood. This group, called the Integrated Forest Industries, includes the following:

a. Timber mill, 20,000 tons capacity, to provide lumber both for export and domestic use.

b. Impregnation plant, 4,500 tons capacity, to treat lumber with chemicals so that it can be used for purposes that are not possible with untreated lumber, such as buildings, bridges and other outdoor construction.

c. Veneer and Plywood plant, 1,500 tons capacity, to produce plywood that will replace imported materials in construction work, and reduce construction costs. Plywood may also be exported.

d. Chipboard plant, 2,500 tons capacity, to produce a cheap construction material from the scrap and waste of the other mills. This too will replace more expensive imported materials and reduce domestic building costs.

e. Furniture factory, 2,000 tons of timber and chipboard capacity, to produce furniture for both government use and private sale.

16. The total cost of the Integrated Forest Industries is estimated at nearly K 10.5 millions. Engineering estimates are now being prepared. The Four Year Plan includes funds only for the study of the project. If this study indicates that the project is feasible, further funds will be made available.

Agency: STATE TIMBER BOARD

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
7.9	4.2	1.1	.8	.5	.4	.5	.4	10.0	5.8
3.4	2.3	1.2	.3	3.3	1.9	2.5	1.7	10.0	6.2
11.3	6.5	2.3	1.1	3.8	2.3	3.0	2.1	20.4	12.0

Projects Name or Description
1. Milling and Marketing
2. Teak Extraction
Total

Agency: **FOREST DEPARTMENT**

(In Millions of Kyats)

6-57	1957-58		1958-59		1959-60		TOTAL	
Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
.0	3.8	2.0	1.6	.9	1.4	.6	7.2	3.5
.05	.45	.35	.1	.1	-	-	.8	.5
-	2.0	-	2.0	-	2.0	-	7.5	-
.05	6.25	2.35	3.7	1.0	3.4	.6	15.5	4.0

Projects Name or Description
1. Forest Research Institute
2. Mangrove and Turpentine and Lac Research and Development
3. Expansion of Extraction of Non-Teak Woods and Standardization
Total

MINING DEVELOPMENT UNDER THE FOUR YEAR PLAN

A. GENERAL

1. Burma has a great wealth of mineral resources. These must be exploited carefully but energetically, so that the receipts from their exports will be available to help pay for the consumers goods and capital goods that Burma must import. Whenever feasible, the mineral resources of the country should be developed to replace costly imports, and to provide useful and remunerative work in the mining and processing of the minerals.

2. Before the war, mineral production in many areas of Burma had reached relatively high levels. In 1939-40, exports of base metals and wax were over 193,000 tons.

Table 1

Base Metals - Exports in 1939-40

	Tons	Value (In thousands of Kyats)
Tin	3,752	7,934
Tungsten	12,145	23,805
Mixed Tin & Tungsten	630	170
Lead Ores & Concentrates	1,282	430
Lead (metal)	78,315	25,223
Zinc	34,473	1,519
Copper & Nickel	7,318	2,051
Wax	56,218	24,772
Total	194,133	85,904

3. The destruction of mines, mining equipment and mineral processing plants during the war was particularly severe. Oil refineries and wells were completly wrecked, mines flooded, their equipment blown up or removed, bridges and transport destroyed and practically everything but the mineral deposits themselves rendered unworkable.

The lack of law and order arising from the insurrection has materially delayed reconstruction work in mining. Even now, many mining areas are seriously handicapped by the depredations of lawless elements that rob and despoil the miners. As law and order is restored in these areas, mineral production may be expected to increase sharply. Security is the most important requirement for increasing production in established mining areas.

4. Because of these difficulties, only a small fraction of the pre-war exports of mineral have been restored. In 1955-56 export tonnage of the same minerals as those given above reached only 38,174 tons, or 44 percent of the 1939 volume.

Table 2

Base Metals - Exports in 1955-56

	Tons	Value (In thousands of Kyats)
Tin	1,327	8,306
Tungsten	1,507	17,317
Mixed Tin & Tungsten	415	3,556
Lead Ores and Concentrates	2,169	924
Lead (metal)	15.400	23,011
Zinc	13,017[a]	3,747[a]
Copper-Nickel	677	1,104
Wax	2,897	2,206
Total	37,509	60,171

[a] Excludes approximately 22,797 tons of zinc, valued at K 7,119,308 which were exported from stock and not from current production.

5. The Four Year Plan envisages sharp increases in mineral production, at an accelerated pace, compared with the period since the war. The general objectives of the plan, as amplified in the discussion that follows, are:

a. To increase oil production and refinery operation so that Burma becomes substantially self sufficient in this important sector.

b. To develop coal mining in Burma, reducing the need to import coal for the existing industries and the new industries being established.

c. To provide incentives and assistance to private miners, so that they will be able to increase minerals production.

d. To establish joint-ventures where necessary, making possible increased production of minerals while ensuring that Burma retains a reasonable share of the ownership of such enterprises.

B. SPECIFIC OBJECTIVES

6. The Four Year Plan contemplates a large increase in the rate of public investment in minerals development. During the past four years, only K 11 millions were expended, compared with the K 142 millions included in the Four Year Plan.

This total excludes the investment by joint ventures and by private investors, which is also expected to increase sharply during the period covered by the Plan.

7. The targets established for mineral production and exports under the Four Year Plan reflect the increased emphasis on mining. By 1959-60, exports in the minerals listed above should reach over 46,000 tons, or 20 percent more than in 1955-56. While this is far below pre-war levels, it still represents targets that will be difficult to attain. The value of the projected exports exceeds pre-war

levels only because the prices at which the minerals are sold are much higher than prewar prices. Also, the increase in value is proportionately greater than the tonnage increases because the projected increases will concentrate in the high value minerals.

Table 3

Base Metals - Projected Exports 1959-60

	Tons	Value (In thousands of Kyats)
Tin	2,942	18,829
Tungsten	3,062	30,620
Mixed Tin & Tungsten	1,166	8,162
Lead Ores & Concentrates	2,700	1,350
Lead (Metal)	16,500	25,450
Zinc	15,500	5,425
Copper & Nickel	750	1,300
Wax	3,500	3,500
Total	46,120	94,636

C. MINERAL DEVELOPMENT

8. Petroleum

The production of petroleum and the development of the oil fields has already shown steady progress. A joint-venture, the Burmah Oil Co. (1954) Ltd., has rebuilt two refineries one at Chauk and a second at Syriam. Together, these refineries have a capacity of 6,500 barrels per day, which will be sufficient to meet most of Burma's requirements. Drilling in the oil fields has been increased so that they are now in a position to supply the 95 million gallons of crude oil per year which will be required when both the Chauk and Syriam refineries are in operation.

9. The government is also planning to increase the scope and pace of oil exploration in the country. With appropriate

safeguards for the public interest, private companies will be invited to explore those areas where oil is likely to be found. If found, the exploitation of these new oil reserves should provide additional resources for developing and improving the country.

10. The Yenangyaung oil field, which was completely devastated by the war, is now being operated by hand methods and the product distributed to local small-scale refineries. The Four Year Plan includes provision for continued support of this project, largely as a measure to relieve unemployment, until it is determined whether large scale operations can economically be resumed.

11. Coal

Burma imports large quantities of coal from India. Imports in 1955 were valued at K 10,372,610. This coal is required to operate the railroads, the electric generating stations in Rangoon, inland river boats and various government and private factories. As new industries such as the steel mill, tile factory and jute mill are placed in operation, additional coal will be required.

12. While Burma has many coal out-croppings, the only field so far uncovered that is commercially feasible is Kalewa, on the upper Chindwin river. The coal here is sub-bituminous, in thick seams and reasonably accessable. A major problem is presented by the fact that the coal tends to fragmentize and its combustion therefore must be handled somewhat differently from the coal presently imported. This will require some adjustment to the furnaces and boilers, or may require briquetting prior to shipment. An additional problem of some magnitude is the distance and the rough

terrain over which the coal must be shipped to its market. Another category of problems relates to the fact that Kalewa coal is prone to spontaneous combustion, and mining and storage operations must be adjusted to this factor.

13. Present plans envisage ultimately a mine consisting of two colliers, each with a daily capacity of 500 tons. Thus, the annual capacity of 300,000 tons will provide sufficient coal to meet all domestic requirement, including the additional demand expected to arise from the Development Programme.

14. The Kalewa mine is expected to be developed in four years. A small drift mine with production of about 20 tons daily is already in use for training purposes and to provide coal for experimental use by the future consumers. Over 7,500 tons have already been shipped. It is expected that during the first year, 100 tons per day will be produced, with 200 tons per day during the second year and 280 tons per day during the third year. This scheduled plan has been named the Short Term Programme, and it will merge into the Long Term Programme, which will reach the planned capacity of 1,000 tons by the end of the fourth year. A firm of coal mining consultants have been engaged to supervise the development of the coal field.

15. The cost of developing the coal field at Kalewa is estimated at K 27.2 millions, of which K 5.5 millions is for the short-term programme. Most of the equipment for the short term programme will be purchased this year. Under-ground development and construction of buildings for the short term and long term programmes will continue together, with full production reached by 1960.

16. The final means of transporting the coal from Kalewa has not yet been determined. Alternative methods are:

a. Water-rail route - by water to Ahlon and by rail from Ahlon to Mandalay and Rangoon.

b. All-rail route - by rail from Shwegyin-wa, opposite Kalewa, to Zigon and thence by rail to Mandalay and Rangoon.

The costs of these alternative methods are now being worked out. Preliminary estimates indicate that they will range from K 6 crores to K 8 crores. The Four Year Plan provides K 4 crores for coal transport, to be expended over a three year period. Additional funds will be required as the tonnage of coal produced is increased.

17. As Kalewa coal is not only friable, but also liable to combustion when exposed to weathering, it may be necessary to briquette the coal before use. Negotiations are under way with the Coal Research Institute, Tokyo, to install a modern plant with a capacity of 20 tons per hour, using rice starch as a binder and financed under the Japanese Reparations payments. The Four Year Plan includes K 2 million for this plant, which probably will be purchased this year.

18. Zinc

A large deposit of zinc carbonate ores has been proven, called the Lough Keng Zinc mine, located in Mong Pawn State (S.S.S.). The visable tonnage is about 400,000, with 40 percent metal content. The deposit is at the surface and therefore can be mined by surface operations.

19. A scheme is being investigated by the Mineral Resources Development Corporation to develop the Lough Keng Zinc

Mine to a production level of 1,500 tons of calcined ore monthly. The calcining of the ores increases the metal content and reduces the weight for transport. The Four Year Plan provides funds for studying the feasibility of this scheme.

20. Work will start this year to connect the 28 miles of fair-weather road from Mong Pawn to the mines to an all-weather road. This access road is expected to be completely metalled by the end of 1957.

21. Experiments covering the best type of zinc smelter plant are now being performed in Germany. If further drilling discloses sufficient reserves and the decision is made to exploit the deposit, a zinc electrolytic plant will also be constructed, using power from the Balu Chaung Hydro-electric Plant now under construction. The zinc smelter plant, if it proves desirable, will be started in 1957 and would be in operation by 1960, with a planned capacity of 30 tons of zinc slab per day.

22. Tin and Tungsten

The Four Year Plan includes funds to develop the Yadanabon Mine in the Mergui district. At present, the mine produces about 30-50 tons a month, which will be doubled under the Plan. A major obstacle has been inadequate transportation. This is being overcome by linking Pyegyimandaing, the base camp, and the mines with an all-weather road, to be completed in 1957. Small access roads will also be constructed as more mining areas are opened.

23. The total cost of this project is estimated at over K 21 millions, of which nearly 20 percent is for road construction. A major portion of the funds, over K 9 million, will be used

for mine development and construction, including a rather large water development scheme to provide sufficient water for the increased production.

24. Iron Ore

An iron ore deposit of significant proportions has been proven about 6 miles south-east of Taunggyi in the Southern Shan States. Exploratory work on the deposit shows about 30 million tons limonite ore reserves, averaging about 42 percent metallic content.

25. Under the Four Year Plan, this deposit will be further studied, as part of the general study of a Smelting Plant and an expanded Steel Mill Project. This project is under survey by the Industrial Development Corporation. The preliminary studies cover the development of a mine which would provide 200,000 tons of ore annually, to be processed into steel by an expanded steel industry.

26. Other Mineral Explorations

The Four Year Plan provides for a continuation and expansion of the mineral explorations that have been started.

a. Copper Deposit - Sinbo, Myitkyina District.

This deposit is estimated at about 150,000 tons of ore, with a metallic content of 2 - 12 percent. Diamond drilling will continue until the size of the ore bed is determined. If a mine is shown to be economically feasible, it will be included in the Four Year Plan as an adjustment to the Government Investment Programme.

b. Copper Deposit - Kawlin, Katha District.

This deposit is at the initial exploration stage and no estimate can yet be made at its probable size. As in the case of the Sinbo copper deposit above, exploration will be vigorously pushed during the Four Year Plan, and if the deposit is large and rich enough, funds will be made available for its development.

c. Other explorations include gypsum (Hsipaw area, Northern Shan States), coal (Minpadaung, near Kalaw, Southern Shan States), and iron ore (Kamaungtaung area, Tavoy District).

27. Technical Training and Facilities

This programme includes:

a. Stipends to geology and minging engineering students at Rangoon University.

b. Stipends to minging technology students at the Government Technical Institute at Insein.

c. Scholarships and study facilities in foreign countries.

d. Regional Chemical Laboaratories - one laboratory at Taunggyi, is already in operation and provides facilities for analyzing mineral ores. Its services are available to private miners as well as to government agencies.

28. Joint Ventures

Three joint-ventures in the mining area have already been established.

a. Burma Corporation (1951) Ltd. - This agreement was signed on 13th October, 1951. The mine produces silver, gold, lead, antimonial lead, zinc, copper "Bawdwin", nickel speiss and iron (used as flux in smelter). The government owns 50 percent of the shares.

b. The Burmah Oil Co. (1954) Ltd. - This agreement was signed on January 12, 1954. The company will operate two oil refineries and develop the oil fields, as well as explore for other oil fields. The government owns one-third of the corporation.

c. Anglo-Burma Tin Corporation (1954) Ltd. - This agreement was signed on July 25, 1956. The company produces tin in the Tenasserim area. The Government owns 51 percent of the corporation.

In addition the government is considering several other joint-ventures in mining. The most important of these is a corporation which will operate the rehabilitated and modernized Mawchi mines.

The Four Year Plan provides funds for the continuation of the joint-ventures that have been initiated, as well as the new ones now under consideration.

29. Aid to the Private Sector - In addition to the public investment outlined above, the government is determined to stimulate and assist in the private production of minerals. The Mineral Resources Development Corporation has initiated a programme which will assist private miners through loans, the hire sale of mining machinery and equipment and technical assistance and advice. The Four Year Plan provides over K 16 millions for loans to indiginous miners, as well as the services of the Regional Chemical Laboratories. Other aids include improved roads in mining areas, an improved flow of explosives and other operating supplies, and improved security measures.

The government has also declared that it will not nationalize private mining properties, so that private investment may be encouraged.

30. Geological Department

The expansion of the mineral industry in Burma will require a vigorous programme of development for the Geological

Department of the Ministry of Mines. This agency must foster a growing knowledge of Burma's geologic structure, in order that the exploitation of its mineral resources may be carried on efficiently and systematically. The Four Year Plan includes funds for additional equipment and facilities for the Geological Department, based on the agency's plan for extending its work.

Agency: **MINISTRY OF MINES**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Joint-Ventures and other Capital Costs	1.6	.5	14.6	2.0	8.0	1.0	8.0	1.0	32.2	4.5

Agency: MINERAL RESOURCES DEVELOPMENT CORPORATION

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
4.9	2.3	10.4	8.2	10.0	7.5	1.9	1.1	27.2	19.1
-	-	2.0	1.0	20.0	19.0	18.0	15.0	40.0	34.0
2.0	1.0	-	-	-	-	-	-	2.0	1.0
2.5	1.0	1.0	.5	-	-	-	-	3.5	1.5
4.2	1.0	5.3	1.7	5.7	2.0	6.0	2.3	21.2	7.0
.8	.3	.5	.3	-	-	-	-	1.3	.6
1.0	.6	1.0	.5	1.0	.5	1.0	.5	4.0	2.1
.8	.5	.9	.4	.8	.4	1.1	.4	3.6	1.7
-	-	1.0	.3	1.0	.3	1.0	.3	3.0	.9
16.2	6.7	22.1	12.9	38.5	28.7	29.0	19.6	105.8	67.9
2.0	1.0	4.7	2.6	4.7	2.6	4.7	2.6	16.1	8.8
18.2	7.7	26.8	15.5	43.2	31.3	33.7	22.2	121.9	76.7

st of Kalewa Coal Transport. The remaining cost (estimate at K 18.0 millio ns) will be required for additional plants.

Projects Name or Description
1. Kalewa Coal Mine
2. Kalewa Coal Transport a/
3. Kalewa Coal Briquetting Plant b/
4. Lough Keng Zinc Mine
5. Yadanabon Tin and Tungsten Mine
6. Pangpet Iron Ore Project
7. Other exploration
8. Technical Training and Laboratory Facilities
9. Mine Access roads
Sub Total
10. Loans to Miners
Grand Total including loans

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a/ Includes only part of the total cost after 1959-60.

b/ If successful, will require funds for

Agency: DIRECTORATE OF MINES

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Laboratory and Research Equipment	-	-	.2	.2	.2	.2	.2	.2	.6	.6

Agency: **GEOLOGICAL DEPARTMENT**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Equipment	.2	.2	.2	.2	.2	.2	.7	.7	1.3	1.3
2. Vehicles	.1	.1	.1	.1	.1	.1	.1	.1	.4	.4
3. Library and Furniture	*	*	*	*	*	*	.1	.1	.1	.1
4. Construction of New Buildings	.3	.1	.8	.4	-	-	-	*	1.1	.5
Total	.6	.4	1.1	.7	.3	.3	.9	.9	2.9	2.3

* Less than 50,000 Kyats.

TRANSPORTATION AND COMMUNICATIONS DEVELOPMENT UNDER THE FOUR YEAR PLAN

PART I. TRANSPORTATION

General

1. The importance of adequate transportation facilities at reasonable cost to the economic and social development of Burma is so obvious as to need no statement of justification. Without these facilities, there can be little or no economic and social progress. As stated in the Comprehensive Report on Economic and Engineering Survey of Burma:

> "An efficient transportation system, once brought within the economic and geographic reach of the general population, in addition to meeting immediate and obvious requirements, stimulates the spontaneous and independent growth in settlement, production, and trade of all kinds. No quantitative measure of this by-product of transportation has been devised, but it is reasonable to predict that it can amount to several times the original volume of activity in a given area in a few years."
>
> "Conversely, the failure of transport and communications quickly reduces any civilization to chaos and lowers the living standard of its people to the barest subsistance standard."

2. The general objectives of the Four Year Plan as they relate to transportation development are:
   - a. To provide adequate facilities for the efficient movement of foreign and domestic commerce and trade.
   - b. To provide this transportation service at reasonable rates, which are high enough to yield a good return on the investment, yet low enough to encourage production and trade.

c. To provide sufficient facilities to allow a free and easy passenger traffic between the different parts of the country, in order that national unity may be fostered and emphasized.

d. To provide access to all parts of the country, so that all the people may benefit from the exchange of goods, services and ideas.

3. Unlike many underdeveloped countries, Burma needs all five of the basic varieties of transportation facilities.

a. Inland waterways - low cost per ton mile, accessable to many areas, excellent for bulk transport where time is relatively unimportant.

b. Railways - suited to constant traffic loads and long hauls for which reliability and regularity are important.

c. Airways - provides speedy transport and reaches areas that can not be reached by surface transport.

d. Highways - permit maximum flexibility of routes and schedules, encourages private initiative, connects other systems and stimulates local development.

e. Seaports and ocean shipping - provides facilities required for obtaining imports and selling exports, as well as for freight and passenger traffic between different parts of the country.

4. The war and the disturbed conditions resulting from insurrection since the war resulted in great damage to the transportation facilities of Burma. Equally serious has been the lack of proper care and maintenance for this long period of war and civil disturbance. Even now, the lack of law and order in some sections of the country seriously interferes with the efficient use of transportation facilities. For example, insurgent activity still makes impossible the operations of the railroad at night.

5. During the past four years, the government has emphasized the rehabilitation of certain transport facilities i.e. rail, inland waterways, air ports. Transportation has received a larger share of public investment funds than has any other sector of the economy, 19.4 percent of the government capital funds expended in the past four years. This emphasis has often been criticized, since it has been necessary at times to curtail other desirable investment in order to provide for additional transportation equipment. However, so important is adequate transportation to the economic well-being of a country that this emphasis on transportation has been well justified. Sufficient rail and water facilities have been restored so that, while the total facilities are still significantly less than pre-war, they are approaching levels that are adequate for the present volume of trade. Under the Four Year Plan, expenditures on transportation facilities will be 17.4 percent of the total capital budgets, which, while still high, reflect relatively less emphasis than in the past four years.

B. Specific Objections

6. In the following sections of this Chapter, each transportation agency has indicated its specific objectives and listed the investment required to attain those objectives. Together, they add up to a programme which by 1959-60 will restore substantially the transportation facilities available to Burma in the pre-war period.

C. Railways

7. The rehabilitation of the railways has been proceeding at a more rapid rate than any other sector of the economy. During the past four years approximately K 12.6 crores have been expended on capital improvement. The Four Year

Plan include K 14.6 crores of additional expenditures, which will permit the Railways Board to complete the first phase of its long range rehabilitation programme - the restoration of railroad capacity to approximately the prewar level.

Table 1

Capital Expenditures - Union of Burma Railways Board

1952-53 to 1955-56	K. 126 millions
Four Year Plan	
1956-57	65.4
1957-58	29.5
1958-59	19.2
1959-60	21.2

8. A comparison with a pre-war year and with last year shows that the Four Year Plan contemplates a marked improvement in the services rendered by the railway system.

Table 2

	Pre-war (1940-41)	Present (1955-56)	Four Year Plan (1959-60)
(a) Passenger (millions)	19.8	23.7	29.1
(b) Passenger miles (millions)	499.8	536.3	668.0
(c) Freight (millions of tons)	4.0	2.3	3.3
(d) Freight (millions of ton-miles)	707.8	379.6	515.0

(e) Passenger traffic should increase by 43 percent during the next four years, and should be substantially above prewar levels.

(f) Freight traffic should increase by 33 percent during the period of the Four Year Plan. Although the level reached would still be substantially below prewar levels, carrying capacity will be approximately equal to the demand. If actual operation shows the need for more freight capacity, additional funds will be provided.

9. Most of the foreign exchange required under the Four Year Plan for the capital programme of the railways will be made available through a loan from the International Bank for Reconstruction and Development (World Bank) and from Japanese Reparations.

a. In May 1956, the Government negotiated a loan from the World Bank for $ 5.35 millions equivalent, which will be used to pay the foreign exchange costs of 1,175 wagons and 8 sets of 3-unit diesel rail cars, related spare parts and the construction of the Sittang Bridge and 50 minor bridges.

b. Japanese Reparations credits will be used for large numbers of passenger coaches, goods wagons, wagon bodies, signalling equipment, steel rails, etc.

10. Railway Rolling Stock:

The Four Year Plan provides funds for completing the restoration of railway rolling stock to approximately the levels available prewar. By the end of the Four Year Plan, the railways will have completed the procurement of 6 diesel locomotives, and will receive 103 passenger coaches, 825 goods wagons, and 552 other wagons, including ore hopper wagons, timber wagons and tank wagons.

Table 3

	Pre-war (1940-41)	Present (1955-56)	Four Year Plan* (1959-60)
a. Locomotives	358	311	324
b. Passenger coaches	766	593	696
c. Goods wagons	7,583	5,967	6,792
d. Other wagons	1,996	1,508	2,060

These numbers of course cannot reflect the improvement in capacity that comes from more modern equipment. For example, the 6 diesel locomotives when they are delivered their numbers appear to indicate, because of their type and size. Similarly, the addition of 8 sets of 3-unit diesel cars will permit a marked speed up in short-haul suburban passenger transport.

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* Preliminary to be revised.

11. Railway mileage

Provision is also made for the restoration of about 130 miles of track out of a total of 266 miles of war-damaged sections still remaining to be rehabilitated. The following table shows the route and track mileage prewar, at present and at the end of the Four Year Plan.

Table 4

	Pre-war (1940-41)	Present (1955-56)	Four Year Plan (1959-60)
Route milage	2,059	1,815	1,922
Track mileage	2,856	2,250	3,362

12. Other Railways Programmes

In addition to restoring the rolling stock, the Railways Board has a well rounded programme for improving carrying capacity and operating efficiency.

a. Track improvement - This includes replacing worn out rails with new and heavier rails, replacing sleepers, etc. Each year, approximately 40 miles of track will be improved, until the entire rail system will have adequate trackage. This will permit speeding up schedules, which are now often reduced because of the need to operate at safe speeds on worn out tracks.

b. Structural works - This includes the improvement of bridges, service buildings and staff quarters for essential railway workers. The workshops at Insein and Myitnge will be extended and improved, while new diesel workshops and sheds will be completed and equipped.

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12. Other Railways Programmes

In addition to restoring the rolling stock, the Railways Board has a well rounded programme for improving carrying capacity and operating efficiency.

a. Track improvement - This includes replacing worn out rails with new and heavier rails, replacing sleepers, etc. Each year, approximately 40 miles of track will be improved, until the entire rail system will have adequate trackage. This will permit speeding up schedules, which are now often reduced because of the need to operate at safe speeds on worn out tracks.

b. Structural works - This includes the improvement of bridges, service buildings and staff quarters for essential railway workers. The workshops at Insein and Myitnge will be extended and improved, while new

c. Signalling and other projects - The acquisition of large quantities of new signalling and telephonic equipment, mostly from Japanese reparations funds, will improve the safety and operating efficiency of the railways system.

B. Inland Water Transport

13. The restoration of riverine transport has received a high priority in government investment plans. The Four Year Plan will provide nearly seven crores for completing the first part of the Inland Water Transport Board programme. This approximately equals the K 6.7 crores spent by the IWTB in the previous four years.

Table 1

Capital Expenditures - Inland Water Transport Board

1952-53 - 1955-56		K 65.7 millions
Four Year Plan		
1956-57		21.7 "
1957-58		14.8 "
1958-59		16.4 "
1959-60		13.9 "
	Total	K 67.8 millions

14. Although a large amount of rehabilitation and replacement has been achieved, estimated riverine traffic is still below prewar levels, and is not expected to have reached those levels by the end of the Four Year Plan.

Table 2

	Pre-war (1940-41)	Present (1955-56)	Four Year Plan (1959-60)
a. Passenger	7.0	4.2	5.7
b. Freight (millions of tons)	1.0	0.8	0.9

c. By the end of the Four Year Plan, passenger traffic, measured in terms of passengers carried, will be about 28 percent below prewar, although, during the four year period it will increase by 35 percent.

d. Freight traffic carried by the IWTB measured in terms of ton-miles, will increase by 25 percent by 1959-60 (although it will still be below prewar).

15. The Four Year Plan will permit the IWTB to complete the acquisition of boats now under contract and to purchase sufficient additional boats so that the total number of craft will be slightly higher than prewar. Most of the new powered craft are diesels, in line with the policy which has been adopted to utilize diesels to the maximum extend. However, many of the boats will still be old, converted war craft that are expensive to maintain and costly to operate.

Table 3

Number of Craft Owned by the IWTB

	Pre-war (1940-41)	Present (1955-56)	Four Year Plan (1959-60)
Powered craft	263	235	257
Non Powered craft	383	356	414
Total	646	591	671

During the past four years, 74 new vessels have been received. Under the Four Year Plan, 80 additional vessels will be added, including paddler steamers, tugs, barges, passenger launches, cargo flats and tankers.

16. In addition to increasing the river fleet, the Four Year Plan will provide funds for rehabilitating the IWTB foundry at Rangoon. This foundry provides parts not only for river craft but also for many other public and private

enterprises. The Plan also provides more than K 5 millions for improving the maintenance facilities at three dockyards, Dalla, Moulmein and Mandalay. This should reduce repair time and improve the operating efficiency of the fleet.

17. The Diesel Training Centre, established at Dalla under the sponsorship of the International Labour Organization, will continue to train diesel mechanics for the IWTB as well as for other public and private enterprises.

18. The programme of the Marine Department consists largely of the construction of vessels for purposes of river patrol and conservancy at the outports, as well as improvement and extension of the Dawbon dockyards. The Department now has 106 vessels in operation, although many are old and rapidly becoming unserviceable. Under the Four Year Plan, it is proposed to purchase 25 new boats for police use and 5 vessels for other governmental use. Funds are also provided for adding to the capacity for maintenance and repair in order to reduce the time boats must now spend in the repair shops.

19. In addition to the new craft to be procured by the IWTB, the State Agricultural and Marketing Board is completing the purchase in Japan of 10 power barges of 120 tons capacity each, and 30 dumb barges of 120 tons each, as well as 40 wooden barges of 50 tons capacity each built in Burma. Under the Four Year Plan, the SAMB will expend nearly K 11 millions to complete the barte purchase. These will add considerably to the lifting capacity available for use, and, together with the new rice wharf to be built at Ahlone, increased moving capacity and other Rangoon and outport improvements, will make possible the increased export of rice projected under the Four Year Plan.

20. The IDC, as part of the cement mill expansion project, is planning the procurement of a modern system of push tugs and barges to transport cement from Thayetmyo to Rangoon. At present, the cement is bagged at Thayetmyo and transported by barges to Rangoon. Losses though breakage are significant, and handling costs are high. The IDC proposes, under the Four Year Plan, to spend about K 12 millions on a completely automatic system for bulk loading and transport, with a bagging plant at Rangoon. All handling will be automatic and, since the barges and loading equipment will be completely covered and automatic, operations will not be affected by the monsoon, handling costs will be reduced and breakage eliminated. The use of these new tugs and barges will release IWTB capacity now being used for cement handling, and make available more transport facilities for other products.

B. Ocean and Coastal Shipping

21. The volume of trade generated in Burma is sufficiently large and varied to support a moderate sized fleet of ocean freighters. Such a fleet would not only make possible a profitable business venture, but it would also make possible trade that could otherwise not exist, by giving Burmese exports first priority on these ships when cargo space is scarce. For example, the recent increase in teak exports was possible only because one of the Shipping Board vessels could be assigned to load teak for India.

Currently, international cargo movements in and out of Burma's ports exceeds 3,000,000 long tons anually, compared with 6,000,000 tons annualy in the years immediately preceding the war. The reduction is due largely to reduced shipments of rice and minerals from Burma. Current programmes for both these major commodities will lead to a substantial recovery of prewar exports during the period of the Four Year Plan.

22. At present, the Shipping Board has two ocean going vessels, each of approximately 8,000 tons, procured from Germany in 1954. These vessels lift approximately 120,000 tons of freight annually. The small fraction of total cargo movements carried by Burmese flag ships not only represents a considerable loss of revenues and foreign exchange, but also often represents reduced exports due to shortages of shipping space. For India alone, normal shipments of hardwoods and rice from Burma now require approximately seven outward movements per month (full cargoes) while required inward movement of coal are three to four per month. Apart from the Indian trade, additional capacity is needed for movement of rice and minerals to other Southeast Asian and Japanese ports. At present, Burmese flag vessels carry virtually none of this trade.

23. Under the Four Year Plan, it is proposed to acquire 2 additional vessels of 8,000 gross tons each. These vessels will cost K 25 millions, and it is planned to have them in operation by 1958-59.

F. Ports and Harbours

24. The Port of Rangoon handles about 85 percent of Burma's foreign trade and 45 percent of its coastal commerce. The efficient functioning of the port is therefore a basic necessity for economic progress in Burma. Other ports such as Moulmein, Bassein, Akyab and Mergui are also important to the proper functioning of the economy. The Four Year Plan therefore provides for more funds for port and harbour development than has been available in the past.

Table 1

Capital Outlay on Ports and Harbours

1952-54 - 1955-56		K 93.5 millions
Four Year Plan		
1956-57		41.8
1957-58		31.6
1958-59		24.1
1959-60		15.7
	Total	K 113.2 millions

25. **Rangoon** - The Commissioners of the Port of Rangoon drew up a programme in 1952 for restoring the Port to its prewar capacity. By the end of the Four Year Plan, this programme will be substantially completed and the Port will be in a position to handle the expected volume of traffic efficiently and at low cost. The volume of traffic, however, will still be substantially below prewar.

Table 2

Volume of Trade in the Port of Rangoon

(In thousands of long tons)

	Pre-war (1940-41)	Present (1955-56)	Four Year Plan (1959-60)
Exports	3,553	1,622	1,942
Imports	1,394	1,210	1,600
Total Volume	4,947	2,832	3,542

26. The Four Year Plan includes completion of the following programmes for the Port of Rangoon.

a. **Flotilla** - Rehabilitation of the flotilla by completing the procurement of 40 vessels used for pilotage, river survey and conservancy. Of these, 19 vessels were received in the previous four years and 21 vessels will be received in the period covered by the Four Year Plan.

b. Wharves - Before the war, there were 10 general cargo berths. At present, 6 general cargo berths are available, in addition to a rice wharf at Ahlone. Under the Four Year Plan, three more general cargo wharves will be completed. Mechanical cargo handling equipment will also be procured, to speed up loading and discharge of vessels.

c. Storage buildings - Funds will be provided for the renovation and improvement of transit sheds and storage godowns.

d. Pontoons and jetties - These serve the needs of inland trade. More jetties will be built and the facilities for private river craft improved.

e. Moorings - Many of the present moorings are uneconomic and will be replaced, and the total number of moorings will be increased.

f. Miscellaneous projects - This will include improvements in access roads, workshops, transport and foreshore extensions.

27. In May 1956, the government negotiated a loan of $ 14 millions from the World Bank, to provide the foreign exchange for nearly all of the programme outlined above. This includes the reconstruction of the three wharves, mechanical handling equipment, nine vessels, two barges and the purchase of new moorings.

28. Under the Four Year Plan the State Agricultural Marketing Board is financing the construction of a new rice wharf at Ahlone, to supplement the existing rice wharf there. This will provide increased facilities to handle the increased rice exports projected under the Four Year Plan. In addition to the construction of a new rice wharf, the SAMB will undertake a survey of the need for two additional rice wharves at

Ahlone, including transportation and storage facilities that would be required. While the Four Year Plan does not provide funds for the construction of the two new wharves, the programme will be modified to include them if the survey shows that they are needed by 1959-60.

29. Outports

The rehabilitation and improvement of ports outside of Rangoon will also be emphasized under the Four Year Plan. These outports have an important role to play in the economic development of the country. In 1955-56, nearly one-third of Burma's rice exports moved through these ports. They also handle large quantities of other products, and their capacity must be improved to keep pace with the increase in the exports of rice, timber and minerals contemplated by 1959-60.

30. The Union of Burma Shipping Board now operates a flotilla in the Akyab port area, that consists of 7 launches, 9 powered barges and 45 dumb barges. Some of these vessels are rented from foreign owners at high costs while others are old military craft in poor condition and expensive to operate. Under the Four Year Plan, three of the launches will be replaced with modern vessels. Fifteen new barges and four tugs will also be procured, adding substantially to the lifting capacity of the harbour.

31. The Union of Burma Shipping Board will also expend nearly K 7 millions under the Four Year Plan on rehabilitating the dockyards at Akyab and improving the maintenance facilities of the Board.

32. The outports of Moulmein, Bassein and Mergui also require extensive rehabilitation and added vessels. Some of these

will be provided under the capital development programmes of such agencies as the IWTB, the SAMB and the Marine Department. For example, the IWTB will expend over K 2 million on improving its dockyard at Moulmein. The SAMB and the IWTB will provide a more adequate number of lighters under their (present large) programmes.

33. In addition to these, the Four Year Plan provides K 5 mi millions for improvement of outports that has as yet not been allocated to specific agencies. These funds, will be utilized for the following projects.

a. Dredging - All of the outports need increased dredging, and it may be necessary to purchase a new dredger to add to the two now owned by the Marine Department. Dredging the outports will permit top loading there, rather than having large vessels move on to Rangoon to complete their loads.

b. Jetty repair and reconstruction - At several of the outports, the jetties are rapidly becoming of limited usefulness because of the lack of maintenance. These now require extensive modernization.

c. Flotilla - Additional tugs, barges and similar craft are needed to permit the outports to increase their usefulness. One barge vessel will also be needed to do the work on three of the outports.

d. Moorings, barges and equipment - Additional moorings and equipment are required to permit increased loading.

G. Air Transport

34. The Union of Burma Airways is now operating a fleet of 9 Dakotas on its regularly scheduled flights. Under the Four Year Plan, 3 additional Dakotas will be acquired. But the Dakotas are becoming old and obsolete, and therefore the Plan includes funds for replacing the Dakotas

with new type planes of the most modern type suitable for operating within Burma. Investigations of possible planes have already begun.

35. Three new Viscount planes have been ordered and will be delivered in 1957-58. These will replace Dakotas on some of the present international flights, and will also permit extending the international flight schedules to such cities as Hongkong, Singapore, Colombo and Kunming. The routes are now being studied by the Union of Burma Airways.

36. The improvement and modernization of airfields will be continued under the Four Year Plan by the Civil Aviation Department. At present there are 33 airfields in Burma used by the commercial airlines. Of these, 26 are fair weather and 7 are all-weather fields. In addition to completing the major aerodrome at Mingaladon and the construction of four new all-weather airfields, the plan provides for the conversion of 6 fair-weather strips into all-weather airfields the construction of two new airstrips and the improvement of several other fields. The field at Mandalay will be relocated and prepared to handle Viscounts, while an Aeronautical Transmitting Station will be constructed at Mingaladon. Relatively large quantities of signalling equipment will be procured in order to improve air safety.

HIGHWAYS

General Objectives

37. The improvement and extension of the highway system in Burma is accepted by the government as having a high priority in the plan for economic development. The general objectives of the highway development programme are:

a. The restoration of reasonable, safe, and economical traffic conditions in the presently most congested portions of the highway system.

b. The support of the increased traffic demand generated by the growth of industry, agriculture, and commerce.

c. The stimulation of further increases in trade, commerce and production.

38. The Four Year Plan consequently includes greatly increased funds for this purpose, as follow:*

Table 1

1955-56 - (budget)	K	.66	crores
Four Year Plan			
1956-57	K	1.02	"
1957-58		3.04	"
1958-59		3.14	"
1959-60		3.86	"
Total	K.	11.06	crores

The Highway Network

39. In this planning, the government is concerned with the entire highway network, regardless of whether construction and maintenance are the responsibility of the Highway Department or other agencies. This section therefore deals with the entire system.

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* GUB budgeted funds for highways. Excludes expenditures that may be made for Pyidawtha grants and local funds.

40. The highway network is composed of bridges, ferries, and the following major classes of routes:

a. National Trunk Routes - These are the main highways numbered I to VIII, connecting the major population centres north-south and east-west, some of which may ultimately become incorporated in important international routes.

b. Secondary Routes - These are district and state routes connecting secondary population centres.

c. Farm to Market Roads - As the name indicates, these are roads connecting the rural areas to their markets.

d. Special Purpose Roads - These are roads providing access to particular development enterprises, industries, mines, and agricultural areas of special importance.

e. Urban Roads and Streets - These are mileage normally the responsibility of municipalities and villages, but to some of which national support may be given in connection with the service of activities of major national concern.

41. The present estimated mileages are summarized in Table 2.

Table 2

National Trunk Roads	3,231 miles
Secondary Routes	6,750 "
Farm to Market Roads	3,750 "
Special Purpose Roads	1,400 "

C. Construction Classification

42. There are numerous special variations in the engineering design of road sections to meet varying traffic requirements, varying terrain and natural conditions, and varying availability and costs of materials. Costs of right of way may also vary widely from location to location. Roads of equal traffic capacity may therefore have quite different costs per mile. However, for the purpose of this plan the following classes are considered:

Table 3

Class		Principal Characteristics	Typical Application
A	Width:	24 ft. to 30 ft.	National Truck Route near population centres; traffic densities 200 to 800 motor vehicles.
	Construction:	Permanent all weather metalled surface, subgrade fully compacted and drained	
	Cost range:	K 2 lakhs to K 10 lakh/mile	
B	Width:	18 ft. to 26 ft.	National Trunk Routes between major centers; traffic density 50 to 300 motor vehicles per hour Prome-Taungup Road.
	Construction:	Same as A	
	Cost range:	K 1 lakh to K 3 lakh/mile	
C	Width:	12 ft. to 16 ft.	National Truck Routes and Secondary Routes; traffic density 10 to 60 motor vehicles per hour.
	Construction:	Same as A	
	Cost range:	K ½ lakh to K 2 lakh/mile	
D	Width:	10 ft. to 16 ft.	Secondary Routes and Farm-to-Market Routes; traffic density 1 to 20 motor vehicles per hour.
	Construction:	Compacted subgrade, water-bound macadam or bitumen stabilized surface.	
	Cost range:	K ¼ to K 1 lakh/mile	
E	Width:	10 ft to 16 ft.	Farm-to Market Routes; traffic density below 5 motor vehicles per hour.
	Construction:	Graded only	
	Cost range:	Below K ¼ lakh/mile	
F	Urban Streets, various improvements, surfacing, kerbs, drains, walks		Main routes through towns and villages where required by national interest.

4. Rehabilitation and Maintenance

45. Because of the present condition of Burma's highways, a great deal of attention must be paid to their rehabilitation and maintenance, rather than to the construction of new highways. Most of the bridge and road construction included in the Four Year Plan is for up-grading (widening and re-surfacing) existing routes to increase their capacity, and for major rehabilitation of badly debilitated existing routes. The mileage

of proposed new routes is limited principally to special purpose roads and a few re-locations. Maintenance work, on the other hand, is a permanent requirement for all roads. Because there is a major necessity for improving maintenance methods and equipment, there is a relatively large capital requirement for expansion of maintenance plant and equipment.

[illegible] The Requirements of the Highway System

44. Table 4 showsthe mileage requiring attention in each of the several classes of routes.

Table 4

Approximate Road Mileages Requiring Attention

Class Routes	Major rehabilitation with upgrading	Major rehabilitation	Maintenance Only	New Routes & Links	Total
National Trunk Routes	83	193	2,955	-	3,231
Secondary Routes	432	159	6,159	99	6,849
Farm-to-Market Roads	-	-	3,750	250	4,000
Special Purpose Roads	7½	-	-	5	12½
Urban Roads and Streets		Data to be developed			

45. The requirement for construction and installation of bridges and ferries is governed by the traffic requirements of each route. Some bridges are required for replacing destroyed bridges, some for replacing and upgrading the existing bridges, and some for improving the route capacity where no bridge existed before. Table 5 shows the known bridging requirements of the present and proposed highway system. A further survey will be necessary before ferry requirements and the complete bridging requirements can be determined.

Table 5

Bridge Requirements

Class Routes	Bridge Replacements		New Bridges	
	No.:	Total Length in feet	No.:	Total Length in feet
National Trunk Routes	6	2,895	6	5,830
Secondary Routes	1	380	1	800

46. To meet the requirements for construction, rehabilitation and maintenance, major strengthening of the highway organization is essential. This can be achieved in part by regrouping present personnel, but requires primarily the addition and training of large numbers of mechanics and operators supervised by a competent staff of mechanical engineers to man the modern road-making machinery already purchased and to properly maintain and care for it. Additional civil engineers are also required. A large increase of establishment is necessary to utilize fully the equipment already in hand.

I. Targets for the Four Year Plan

47. To accomplish completely the general objectives of the Four Year Plan as they relate to Highways would require a great deal more resources than Burma can afford to devote during the next four years for this purpose. The government is therefore compelled to select for action the most urgent work that can be accomplished within the available resources. While selection has been very difficult, the work shown in Table 6 is provisionally designated for accomplishment during the four year period. No doubt changes will be made as budgets are prepared each year, but the general scope and direction of the highway programme will be guided by this Four Year Plan.

Table 6

Four Year Plan Highway Objectives (Miles)

Class Routes	Major Rehabilitation with upgrading	Major Rehabilitation	Maintenance Only	New Routes & Links	Total
National Trunk Routes	46	74	2,000	-	2,120
Secondary Routes	260	101	4,000	52	4,413
Farm-to-Market Routes	-	-	2,000	-	2,000
Special Purpose Roads	7½				7½
Urban Roads & Streets					

There is also included in the Four Year Plan provision for 4 bridges.

48. It will be seen that the repair, rehabilitation, and construction proposed represent only a very modest start on the improvements needed by the overall highway network. This start however is to be made in the areas of greatest congestion and most urgent requirement by local populations.

49. To provide the personnel with which to man and maintain equipment and to rapidly expand the road maintenance capability of the Highway Department, a major recruiting and training programme is also planned. While the mechanized maintenance of the entire road mileage cannot be expected within the four-year period, it is intended to have established by 1960 a capability for first class maintenance of roughly two-thirds of the total mileage of national trunk routes and secondary routes, and half the mileage of farm-to market routes.

50. Bus and Truck Programme - The value of the Highways is in the traffic they carry. The average age of buses and trucks in Burma is extremely high. Every year many vehicle are being scrapped, while many others are unsafe, costly to operate and should be scrapped. Imports of busses and trucks since 1950 have been negligible and numbers available for use will soon

begin to decline precipitously. More than any other form of transport, buses and trucks bind the distant parts of the Union together. The government will make every effort to afford increased facilities for the import of buses and trucks during the next four years.

51. Communications

By the beginning of World War II, Burma had a well developed and efficiently operated communications system. There was an extensive network of telegraph lines involving some 33,000 miles of wire connecting 656 telegraph offices, including two land lines to India. The populated areas of Burma had adequate local and long distance telephone services, with a link to the international rediotelephone via Madras. Wireless was utilized for shipping, aeronautical, meteorological, broadcasting and international services, with over a half a million messages handled by the radio services in 1939-40. These telecommunication facilities were almost entirely destroyed during the war.

52. After the war, rehabilitation of the telecommunication facilities was initiated by the military authorities as well as by the civilian government. Equipment and supplies were made available largely from military stocks, but some civilian-type equipment was also procured. By the end of 1947, the telegraph network was largely restored.

53. The Telecommunications Department has a varied and comprehensive programme, which, when completed, will provide Burma with a modern, flexible means of communication both internally and internationally.

a. Rangoon Telephone Automatization - This involves the construction of a completely automatic telephone system in Rangoon and Insein, including 3 new exchange buildings, underground cable systems and connecting network. The cable system will have a capacity of 8,300 lines, which, when multiplied by private stations and trunk lines, will permit a rapid expansion in the use of telephones. The entire project, under way since is planned to be completed by 1959-60, and the Four Year Plan provides K 12.5 millions for its completion.

b. Landline Rehabilitation and Expansion - This project provides for the restoration of telephone lines between Rangoon, Tharrawaddy, Prome, Yenangyaung, Meiktila, Mandalay, Pegu, Toungoo and Thazi. It is estimated that during the period of the Four Year Plan, over K 15 millions will be spent on this work.

c. International Truck Services - This will permit a large increase in the presently limited international traffic. The Four Year Plan allots over K 6 millions to initiate and complete this project.

d. External and Internal High-frequency radio circuit facilities- Completion of this project will permit expansion of the services between numerous points in Burma, as well as between Burma and international points. Under the Four Year Plan, nearly K 7 millions are made available for this project.

e. Other projects - These include the modernization and expansion of the Mandalay and district telephone systems, delta UHF/VHF telephone and telegraph network, radio regulation bureau, technical training programme, and other minor projects.

Agency: **UNION OF BURMA RAILWAYS BOARD**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Rolling Stock (Locomotives, diesel units, carriages, wagons, etc.)	35.8	27.0	14.6	12.0	1.6	-	1.6	-	53.6	39.0
2. Works (Track renewals, bridges, structural works, electrical works, etc.)	25.9	7.1	27.7	13.1	17.1	4.4	16.7	5.0	87.4	29.6
3. General Charges and Other Liabilities	1.2	-	1.0	-	1.1	-	1.2	-	4.5	-
Total	62.9	34.1	43.3	25.1	19.8	4.4	19.5	5.0	145.5	68.6

Agency: INLAND WATER TRANSPORT BOARD

(In Millions of Kyats)

Projects Name or Description	1956 - 57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Committed Vessels										
1. Paddler No. 1	.5	.7	.45	-	-	-	-	-	0.50	-
2. Pusher Tugs 5 Nos.	2.35	0.4	-	-	-	-	-	-	2.35	.7
3. Large Quarter Wheelers (M) (5) 5 Nos.	1.49	.6	-	-	-	-	-	-	1.49	.6
4. Small Quarter Wheelers (M) (3) 3 Nos.	3.13	2.65	-	-	-	-	-	-	3.13	2.65
5. Twin screw double deck launches (3) 3 Nos.	3.92	2.9	-	-	-	-	-	-	3.92	2.9
6. Power Barge (M) (3) Nos.	1.02	.9	-	-	-	-	-	-	1.02	.9
7. Pusher Barges (M) 30 Nos.	4.07	2.35	-	-	-	-	-	-	4.07	2.35
8. Cargo flats 30 Nos.	3.35	.15	3.62	1.82	3.42	1.50	1.50	1.50	11.89	5.09
9. Chin Class Vessels	-	-	-	-	-	-	-	-	-	-
Total Committed	19.38	10.65	4.07	1.82	3.42	1.62	1.50	1.50	28.37	15.19

[illegible]

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
0.57	0.3	1.73	0.8	1.1	0.5	-	-	3.4	1.6
0.78	0.4	1.69	1.1	0.9	0.7	-	-	3.37	2.2
-	-	1.1	0.5	0.5	0.3	0.6	0.3	2.2	1.1
-	-	1.0	0.6	0.9	0.5	0.9	0.5	2.8	1.6
-	-	2.1	1.8	4.1	3.6	3.0	2.6	9.2	8.0
-	-	-	0.9	-	-	-	-	-	0.9
-	-	-	-	3.1	2.3	6.7	3.5	9.8	5.8
-	-	-	-	1.8	1.5	0.9	0.7	2.7	2.2
-	-	-	-	0.6	0.6	0.3	0.2	0.9	0.8
-	-	2.16	1.8	-	-	-	-	2.16	1.8
-	-	1.83	1.5	-	-	-	-	1.83	1.5
0.86	-	-	-	-	-	-	-	0.86	-
0.13	-	-	-	-	-	-	-	0.13	-
0.01	-	-	-	-	-	-	-	0.01	-
21.73	11.35	15.68	10.82	16.42	11.62	13.90	9.30	67.73	42.69

Projects Name or Description
Others
10. Rehabilitation Rangoon Foundry
11. Dalla Dockyard Improvement
12. Moulmein Dockyard
13. Mandalay Dockyard
14. Paddlers (3) 3 Nos.
15. Oil Tanker
16. 120-ton Cargo barges 50 Nos. Total tonnage 6,000 tons
17. (Open) Powered Barges 6 Nos. 720 tons.
18. (Roofed) Power Barges (2) 240 tons
19. Water barges - 2 Nos.
20. Harbour tugs - 3 Nos.
21. Conversion of craft
22. Buildings
23. Motor Car
GRAND TOTAL

Agency: UNION OF BURMA SHIPPING BOARD

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
2.1	1.8	1.0	.9	-	-	-	-	3.1	2.7
.6	.5	.6	.5	.6	.5	-	-	1.8	1.5
.6	.5	.6	.5	1.2	1.0	-	-	2.4	2.0
1.3	.8	1.2	.8	1.2	.8	1.2	.8	4.9	3.2
.5	.5	.5	.5	.5	.5	.5	.5	2.0	2.0
-	-	12.5	12.	12.5	12.5	-	-	25.0	25.0
5.1	4.1	16.4	15.7	16.0	15.3	11.7	1.3	39.2	36.4

each. One or both of these may be utilized as Government's share of a Joint Venture in

Projects Name or Description
1. Arakan Section Fleet
Launches (3)
Barges (15)
Tugs (4)
2. Dockyard Rehabilitation
3. Other Capital Expenditures
4. Ocean Going Vessels (2)* - Joint Ventures
Total

* Consists of 2 vessels, 8,000 tons ocean shipping.

Agency: UNION OF BURMA AIRWAYS BOARD

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Viscounts	7.9	7.6	3.7	3.1	-	-	-	-	11.6	10.7
2. Dakotas Replacement Planes	-	-	13.8	13.7	12.0	12.0	-	-	25.8	25.7
3. Link Trainer	.2	.2	.3	.3	-	-	-	-	.5	.5
4. Motor Transport	.2	.15	.3	.3	.3	.3	.3	.3	1.1	1.05
5. Accounts Mechanisation	.3	.25	-	-	-	-	-	-	.3	.25
6. Modification of Dakota Aircraft	.2	.175	.2	.175	-	-		-	.4	.35
7. Stores and Buildings	-	-	.6	.4	1.5	.7	2.0	1.0	4.1	2.1
Total	8.8	8.375	18.9	17.975	13.8	13.0	2.3	1.3	43.8	40.65

[illegible]

Agency: **CIVIL AVIATION DEPARTMENT**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Airstrip Improvement	3.6	.2	4.0	1.0	3.0	1.0	2.0	.5	12.6	2.7
2. Terminal Building (MACC)	1.0	.3	-	-	-	-	-	-	1.0	.3
3. Equipment, Vehicles, etc.	.9	.7	1.0	.9	1.2	.9	1.3	1.2	4.4	3.7
4. Mandalay Runway	1.0	-	1.0	.3	-	-	-	-	2.0	.3
5. Aeronautical Transmitting Station, Mingaladon	-	-	.8	.3	.8	.3	-	-	1.6	.6
Total	6.5	1.2	6.8	2.5	5.0	2.2	3.3	1.7	21.6	7.6

February 28, 1957

Agency: MARINE AND LIGHTHOUSE DEPARTMENTS

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Vessels for Police (25 boats)	2.0	1.7	1.3	1.1	1.2	1.0	1.2	1.0	5.7	4.8
2. Others (spare parts, other vessels, etc.)	1.2	.3	3.5	2.5	3.5	2.5	3.5	2.5	11.7	7.8
Total	3.2	2.0	4.8	3.6	4.7	3.5	4.7	3.5	17.4	12.6

February [illegible], [illegible]

Agency: **BOARD OF MANAGEMENT FOR PORT OF RANGOON**

(In Millions of Kyats)

Projects Name or Description	1956-57 Total	1956-57 Foreign Exchange	1957-58 Total	1957-58 Foreign Exchange	1958-59 Total	1958-59 Foreign Exchange	1959-60 Total	1959-60 Foreign Exchange	TOTAL Total	TOTAL Foreign Exchange
1. Flotilla	16.6	15.7	10.2	8.6	3.5	2.0	-	-	30.3	26.3
2. Wharves and Equipment	14.3	11.0	12.0	8.0	13.0	10.0	10.0	4.0	49.3	33.0
3. Pontoons, Bridge and Jetty	2.8	2.1	.7	0.6	.6	0.6	-	-	4.1	3.3
4. Moorings	1.3	1.1	.5	.4	.5	0.5	.5	0.5	2.8	2.5
5. Other Projects	2.7	1.2	3.3	1.2	1.3	.3	-	-	7.3	2.7
6. Godowns and Other Buildings	.9	.2	.1	-	.5	.2	.5	.2	2.0	.6
Total	38.6	31.3	26.8	18.8	19.4	13.6	11.0	4.7	95.8	68.4

February 13 1957.

Agency: OUTPORT PROGRAMME*

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Outport Programme (dredging, jetty repair, moorings, barges, etc.)	-	-	-	-	3.0	2.0	2.0	1.5	5.0	3.5

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* The administrative arrangements for this programme have not been determined. The IBRD (World Bank) has been requested to examine the present arrangements for management of outports and to suggest a more efficient alternative.

Agency: TELECOMMUNICATIONS DEPARTMENT

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959 -60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
7.644	3.98	2.35	.85	1.00	.20	1.50	1.30	12.494	6.33
.50	.20	.30	.15	.24	.12	.10	.05	1.14	.52
3.10	.90	3.00	.90	.35	.10	.13	.03	6.58	1.93
.90	.80	2.375	1.70	1.775	1.40	1.15	1.00	6.20	4.90
3.00	2.30	4.23	3.21	5.44	3.90	2.67	1.46	15.34	10.87
-	-	.56	.46	.56	.46	.56	.46	1.68	1.38
-	-	1.725	.75	-	-	-	-	1.725	.75
-	-	.365	.30	-	-	-	-	.365	.30
.10	.05	.30	.20	.26	.20	-	-	.66	.45
-	-	.058	-	.655	.115	.457	.365	1.17	.48
-	-	.19	.09	.07	.02	.07	.02	.33	.13
.10	.05	.10	.05	.10	.05	.10	.05	.40	.20
15.344	8.28	15.553	8.660	10.450	6.565	6.737	4.735	48.084	28.240

Projects Name or Description
1. Automatization of Rangoon's Telephone system
2. Delta UHF/VHF Telephone and telegraph network
3. External and Internal H - F radio circuit facilities
4. International trunk service facilities (open-wire carrier and VHF)
5. Landline rehabilitation and expansion
6. Modernization and expansion of district telephone systems
7. Modernization of Mandalay's telephone system
8. Relocating Marine radio station
9. Improved Handling of telegrams
10. Radio regular bureau
11. Technical training programme
12. Minor projects (new) and completion of certain small works
TOTAL

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
0.4	0.2	2.6	0.8	2.0	-	-	-	5.0	1.0
0.5	-	3.5	0.4	3.0	0.6	3.0	-	10.0	1.0
-	-	1.6	1.6	1.7	1.7	1.7	1.7	5.0	5.0
-	-	0.5	0.4	0.5	-	1.1	-	2.1	0.4
-	-	0.1	0.2	1.0	-	-	-	1.1	0.2
-	-	0.4	0.8	4.0	1.1	4.5	1.0	8.9	2.9
-	-	0.5	1.0	5.0	1.5	5.5	0.8	11.0	3.3
-	-	-	-	1.0	0.2	6.0	1.2	7.0	1.4
4.3	1.0	5.5	1.0	5.5	1.1	6.1	1.1	21.4	4.2
-	-	3.5	3.5	1.7	1.7	1.7	1.7	6.9	6.9
5.0	0.8	7.0	1.2	8.0	1.8	8.5	1.8	28.6	5.6
10.2	2.0	25.2	10.9	33.4	9.7	38.2	9.3	107.0	31.9

ject will be received under the Colombo Plan.

	Projects Name or Description
1.	Pazundaung Creek Bridge and approaches (Rt I) a/
2.	Insein Industrial Trunk Widening (7.5 miles Special Purpose Road, Class A)
3.	System Engineering Survey, Supervision of Construction, and Other Engineering Services
4.	Bilin Bridge (Rt VIII)
5.	Routes I and II, Mingaladon to Htaukkyan Widening and Rehabilitation (6 miles Class A)
6.	Route I Htaukkyan-Zayatkwin Widening and Rehabilitation (14½ miles, Class B)
7.	Route I Zayatkwin-Pegu Widening & Rehabilitation (18 miles, Class B)
8.	Route II Htaukkyan-Hmawbi (7 miles, Class B)
9.	Extension of Communications in Chin Hills, Other Areas, Minor Works (562 miles, Class B)
10.	Tools and Plant
11.	Prome Taungup Road. (Remaining 60 miles, Class B)
	Total

* Additional funds to complete the proje

[illegible] Agency: **POSTAL DEPARTMENT**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Buildings	.7	.4	1.0	.3	1.0	.3	1.0	.3	3.7	1.3
Transport of Mail	-	-	.2	.2	.2	.2	.2	.2	.6	.6
Total	.7	.4	1.2	.5	1.2	.5	1.2	.5	4.3	1.9

February [illegible],1[illegible]7.

POWER DEVELOPMENT UNDER THE FOUR YEAR PLAN

1. General

1. The expansion of electric power is basic to the economic and social development of Burma. The government has initiated an electric power programme which, when its first phase is completed in 1959-60, will be able to generate more than three times as much power as was generated before the war, and will make electricity available to all cities and towns of Burma as well as to a large proportion of the rural population.

2. War damage to the power system was particularly extensive, since generating stations and distribution systems are relatively easily destroyed. The scanty records that remain indicate that more than three-fourths of all generators and most of the major distribution lines were destroyed or severely damaged.

3. By 1955-56, a great deal had been done to restore electric power. As indicated below, most of the larger towns had some electricity available, although the capacities of the generators were far below the indicated demand. The Four Year Plan provides for the completion of the projects already started, and the development of distribution facilities that will reach nearly 11 million people, living in 314 towns and 1,500 villages.

4. It is the government's plan not only to increase the available supply of electric power, but also to sell it at a price that will encourage its use, both domestic and industrial. Power for domestic lighting must be available at costs that the Burmese labourer and farmer can afford. Cottage and small scale industries must be encouraged to use power machines to increase their production and reduce their unit costs, thus increasing returns to the small producer. Large scale use of power by industries must be at a cost that permits low cost production

and low prices to the consumers. The government has made several reductions in the schedule of rates and will continue to make reductions until electricity is being supplied at a price that yields reasonable returns to investment while stimulating production and use.

5. The government scheme for power development is an important part of the Four Year Development Plan, including about 9 percent of the total government investment expenditures. These power schemes may be divided into the following:

a. Hydroelectric Plants;

b. Diesel Stations;

c. Rangoon Area Power Scheme, and

d. Small Town Lighting Scheme

b. Hydroelectric Scheme

6. The Hydroelectric Scheme includes the construction of a large plant at Balu Chaung, near Loikaw, and the investigation of several other potential sites. The Balu Chaung project will ultimately be able to develop a power potential of 255.000 KW, at three very advantageous sites. Only one of these sites, the second group of falls at Balu Chaung, is now under construction. This site will contain three generating units, with a total capacity of 84,000 KW. Two major transmission lines are also included:

a. Southern Line (Rangoon) - 230 KV line, 250 miles; and

b. Northern (Meiktila - Mandalay) - 132 KV lines, 200 miles.

These lines will be connected to the National Grid (discussed below) which will make cheap hydroelectric power available to central and lower Burma.

7. By the end of 1955-56, a great deal of the work of the project was already underway. Most of the equipment had been ordered,

and some of it had already arrived. Roads and construction camps have been substantially completed and work has started on the power plant, pondage and conduits. The project is being financed largely from Japanese reparations funds and two Japanese firms have been employed for the construction of the power stations and the southern line by 1958-59, and the northern line by 1959-60.

8. The total cost of the project will be about K 21 crores, of which nearly K 5 crores had been expended by 1955-56. The remaining K 16 crores is included in the Four Year Development Plan.

9. Two other hydroelectric power projects are being surveyed under the Four Year Plan. These are the Wetwun site and the Namsang Hka site. Both of these are relatively small projects, which, if developed, will provide cheap power for local use.

10. Several other potential sites for electric power generation have been studied, notably at Saingdon Falls (near Akyab) and at the Pegu river. Plans for the development of these sites have been suspended until the demand for their power is developed. Under the Four Year Plan, explorations will be continued in the Kachin States and the Chin Hills, in order to find the best locations for small hydro projects that can be exploited with the resources available to meet the limited potential demands for power in those areas.

C. Diesel Scheme

11. This scheme will provide for a large number of diesel stations, ranging from 1,000 KV to 250 KV in size, to be located in 28 towns, as follows:

	Towns	No. of Generators
a. 1,000 KV Generators	Mandalay	2
	Meiktila	2
	Pegu	2
	Prome	2
	Tharrawaddy	2
	Toungoo	2
	Myingyan	1
b. 500 KV Generators	Bassein	2
	Henzada	2
	Magwe	1
	Moulmein	2
	Pyinmana	2
	Yegyi	1
c. 250 KV Generators	Akyab	2
	Bassein	1
	Minbu	2
	Monywa	2
	Pakokku	2
	Pyapon	2
	Thaton	2
	Bhamo	1
	Katha	1
	Kyaukpyu	1
	Maubin	1
	Maymyo	1
	Myitkyina	1
	Shwebo	1
	Taungdwingyi	1
	Tavoy	1

12. A 33 KV grid has been planned (472 miles) which will link together Meiktila, Pegu, Prome, Tharrawaddy and Toungoo. Together with transmission lines from Balu Chaung, which will reach north to Mandalay and south to Rangoon, the scheme provides for a system that will cover the more populous parts of central and lower Burma.

13. When hydroelectric power is available from Balu Chaung in 1959, it will be fed into the 33 KV grid, as well as transmitted directly to Rangoon and Mandalay. Some of the diesel stations will be kept for standby purposes and to meet peak loads, while others will be moved to areas that cannot be reached by the grid.

14. With the exception of Pyinmana, the 500 KV and 250 KV stations are too distant to be reached by the grid, and therefore these

will remain as independent stations, the centres of 11 KV lines that will radiate out to the surrounding towns and villages.

15. In summary, the diesel scheme now includes:

a. Installing thirteen 1,000 KV generators in 7 large towns;

b. Installing ten 500 KV generators in 6 towns;

c. Installing twenty-two 250 KV generators in 16 towns;

d. Constructing 462 miles of 33 KV lines to connect some of the larger towns in a distribution grid; and

e. Constructing over 1,000 miles of 11 KV lines and over 1,500 miles of 400 volt low tension lines to distribute the power generated by the above stations.

16. By the end of 1955-56, more than 60 percent of the work required to complete the Diesel Scheme had been completed. All of the generations and most of the auxiliary equipment have been received and sent to their sites. Construction has been started on all the 1,000 KV stations, and one at Pegu was completed in 1955-56. Three other 1,000 KV stations were completed in the first quarter of 1956-57 and the remaining stations are expected to be completed by the middle of 1956-57. Work has started on all the 500 KV and 250 KV stations; two have been completed and the remainder are expected to be in operation by the end of 1956-57. The 462 miles of the 33 KV grid transmission lines have been completed, in addition to about 312 miles of 11 KV lines and 112 miles of 400-volt lines for distribution purposes, with 154 additional villages connected to town lighting systems. The total cost of this scheme is estimated at about K 17 crores, of which over K 12 crores had been expended by the end of 1955-56. Therefore, the Four Year Plan includes a provision for nearly K 5 crores to complete this scheme.

B. Rangoon Area Power Scheme

17. Rangoon and its surrounding area require a sharply expanding supply of electric power. Not only is the population increasing rapidly but the industrial and commercial expansion, both government and private, will require large quantities of additional power. A long list of actual and potential industries including the steel mill, jute mill, pharmaceutical plant, brick and tile plant, etc., offer obvious evidence of the increasing demand for power.

18. By the end of the Four Year Plan, the electric generating capacity in Rangoon will be increased from 29,000 KV to 60,000 KV, together with all the ancillary equipment and distribution facilities required to utilize this capacity.

   a. Ywama Power Station - This station will consist of two 10,000 KV turbines and three 60,000 lbs/hr boilers and all connected auxiliaries, station equipment and station and transmission power transformers. It is designed to provide power for the new steel mill, jute mill and the other industries developing about the Insein Industrial area; and

   b. Extension of Ahlone Power Station - The addition to this station will consist of one 1,000 KV turbine and two 60,000 lbs/hr boilers. Its purpose is to provide the additional power required in Rangoon Town.

19. The plan for Rangoon also includes improvements and extension in the distribution lines and facilities. Lower rates will encourage increased consumption, domestic as well as industrial and commercial. At present, 51,875 families are utilizing electric power in Rangoon. This is a relatively small proportion of the households in the city and can be expected to increase sharply in the next four years. The RESB is now making an average

at 200 new connections a week, which indicates the large unmet demand for electricity.

20. A great deal of work has already been completed in this programme. Practically all of the equipment has arrived and all major construction projects have been or are nearly completed. It is expected that both the Ywama and Ahlone stations will be completed by 1958-59.

21. The total cost of the Four Year Plan for the Rangoon Area Power Scheme is K 4.5 crores. This is significantly larger than the K2.7 crores spent in the previous four years by the RESB, and indicates the determination of the government to provide ample power at reasonable prices.

E. Small Town Lighting and Other Load Development Scheme

22. In order to be able to make efficient use of the hydroelectric power when it becomes available, it is necessary to start building up the load demand now. The government has plans to encourage the development of domestic industries, as well as to provide more adequate domestic lighting, by installing small generators in towns which will eventually be connected to the distribution grid or to town systems. The generating sets in this scheme range in capacity from 20 KV to 100 KV. By the end of 1955-56, reports show that 254 small towns were lighted, reaching an estimated population of over 250,000 people, most of whom have not had access to electricity.

23. The government also plans to expand the use of electricity by opening Demonstration Offices, which will demonstrate electrical appliances and equipment. For this purpose, Show Vans mounted with electrical appliances will also be used, in order to reach areas outside of the larger towns. Emphasis will be placed on

demonstrating how the use of electricity can raise the standard of living by increasing production of cottage industries, as well as by improving the health and education of the community.

24. In order to provide the skilled workers necessary to maintain the power system that is being built, the government is developing a Training Centre for electrical workers. This centre will have laboratories and workshops in which workers will learn how to install and maintain all kinds of electrical equipment. Particular attention will be paid to training transmission line workers, in order to maintain the hundreds of miles of distribution lines that are now being built. Many of the buildings are already under construction and the centre is scheduled to start operations by mid 1957. When the Centre is completed by 1959-60 it will train in-service workers. It is planned to run three short courses a year, each of which will take about two months time and will turn out a class of 200 trained workers.

Agency: ELECTRICITY SUPPLY BOARD

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
.1	.1	.5	.2	.5	.2	.5	.2	1.6	.7
12.0	7.1	11.0	5.0	11.0	5.0	13.0	6.0	47.0	23.1
56.1	40.3	64.4	42.0	41.9	24.6	15.4	9.8	177.8	116.7
.3	.1	.4	-	.1	-	-	-	.8	.1
-	-	.6	.4	1.4	1.0	-	-	2.0	1.4
.2	.1	1.0	.4	1.1	.3	.6	.2	2.9	1.0
68.7	47.7	77.9	48.0	56.0	31.1	29.5	16.2	232.1	143.0

and Namsang-Haka hydroelectric projects, survey only.

Projects Name or Description
1. General Administration
2. Diesel Project (E & M)
3. Hydroelectric Project *
4. Stores
5. Commercial
6. Education
Total

* Includes funds for Wetwun and

Agency: RANGOON ELECTRIC SUPPLY BOARD.

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Ahlone Power Station and Ywama Power Station (Nos. 53/1 & 54/2)	17.4	15.9	6.4	5.0	.2	.2	.2	.2	24.2	21.3
2. 33 KV Transmission Extensions No. 54/1	-	.1	2.4	2.2	.3	-	1.5	1.0	4.2	3.3
3. General Distribution (No. 56/1)	2.6	1.7	2.6	1.7	2.6	1.7	2.6	1.7	10.4	6.8
4. Misc. Workshop and Testing Equipment (No.55/7)	.2	.2	.3	.2	.2	.2	.3	.2	1.0	.8
5. Transport (No.55/8)	-	-	.3	.2	.3	.2	.3	.2	.9	.6
6. Test Lab. Ywama	-	-	-	-	.4	.2	-	-	.4	.2
7. Quarters. Ywama and Ahlone	.4	.1	.3	-	.4	.1	-	-	1.1	.2
8. Administrative Office Buildings, Stores, etc.	.4	.1	.4	.1	-	-	-	-	.8	.2
9. Publighting	.5	.3	.5	.3	.5	.3	.5	.3	2.0	1.2
TOTAL	21.5	18.4	13.2	9.7	4.9	2.9	5.4	3.6	45.0	34.6

INDUSTRY DEVELOPMENT UNDER THE FOUR YEAR PLAN

A. General

1. Under the Four Year Plan, the industrial development of Burma will take a large forward stride. Several major projects will be completed and placed in operation, some plants already built will be enlarged or improved, while many new industrial projects will be initiated and completed.

Table I

Industrial projects that are completed and operating but will be improved under the Four Year Plan	Industrial projects that were started and will be completed under the Four Year Plan	Industrial projects that will be initiated and completed under the Four Year Plan a/
(a) Sugar Mill (Pyinmana)	(a) Steel Mill (Ywama)	(a) Textile Plants (3)
(b) Sugar Mill (Namti)	(b) Cement Mill Expansion (Thayetmyo)	(b) Soap Factory
(c) Pharmaceutical Plant	(c) Jute Bag and Twine (Okkyin)	(c) Rice Bran Oil Mill
(d) Textile Plant (Thamaing)	(d) Brick and Tile (Danyingon)	(d) Rubber Tyres and Tubes
(e) Tea Blending & Packing	(e) Cottage & Small Scale Industries	(e) Asbestos Cement Roofing & Piping
		(f) Fertilizer Mixing Plant
		(g) Steel Mill Expansion (Survey only)
		(h) Paper Mill - (Survey only)

a/ Several of these projects are provisional, pending necessary engineering and economic studies.

2. Of the total public investment programme included in the Four Year Plan, 6.6 percent or K 16.6 crores will be allocated to these industrial projects. This may be compared with 11.4 percent of public funds devoted to industrial projects in the previous four years.

3. While this industrial investment by government is important, almost critically so, to the future development of Burma, it is by no means designed to "industrialize" Burma, in the usual

sense of that term. Indeed, to do so would require far more resources than Burma has available and far more time than four years. Moreover, employment in the private industrial sector is more than ten times that anticipated in State industrial enterprises. Thus, the growth of industry in Burma depends far more on what happens in the private sector. Burma's prime resources are in the fields of agriculture, forestry and mining. In the Development Plan, a great deal of emphasis must be placed on improving the volume and efficiency of production in those areas, since such investment undoubtedly will yield large and immediate returns. Even after all the industrial projects included in the Four Year Plan are completed and in operation, they will employ only a small fraction of the man-power in Burma and will yield only a small part of the national product. It is estimated that the industrial plants listed above will employ about 18,000 men to operate them, or less than 1 percent of the employable population of urban Burma. Another way of measuring this is to point out that the industrial plants in the Development Programme will produce less than 5 percent of the total output of the country. Thus, the industrial programme included in the Four Year Plan is large only in relation to the present size of the industrial sector; it is not large relative to the total economy, nor even to industry as a whole.

4. The general objective of the Four Year Plan is to develop a broader industrial base than now exists in Burma, a base which will permit the following:
   a. Production at reasonable levels of efficiency of supplies and equipment that Burma needs, so that they can be provided to the public at reasonable prices
   b. Wider and more remunerative employment opportunities for Burma's workers.

c. Development of skilled workers and efficient technicians and managers.

d. Foster the healthy growth of private industrial enterprise.

e. A better balanced domestic economy.

B. Projects Completed or Underway

5. The Four Year Plan provides for improved operations of projects that have been substantially completed, and for the completion of all the industrial projects that have been initiated. For several projects, this means the additional procurement of minor items of equipment required to increase operating efficiency. For others, it means final payments on the equipment, final payments for the construction of the buildings or necessary ancillary buildings and facilities. For most of these projects, expenditures under the Four Year Plan will represent only a minor part of the total cost, the major part have been expended previously.

6. Sugar Mills

Two new sugar mills, at Pyinmana and at Namti, have been completed and are now producing sugar. Burma consumes about 45,000 tons of sugar a year. War Time destruction of sugar mills left Burma in a position where most of its sugar requirements had to be met by imports, and farmers producing cane or capable of producing cane were being denied a profitable market. The two new mills cost about K 28 millions, of which the final payments of K 3 million are included in the Four Year Plan. Together, the two new mills will have a daily crushing capacity of 2,500 tons of sugar cane, and an annual capacity of 39,000 tons of sugar. The national sugar factory at Zeyawaddy will also be improved and modernized under the Four Year Plan. Total annual capacity of these three mills will be about 60,000 tons, or enough to meet total present requirements as well as the additional requirements arising from an improving standard of living. Moreover, production costs will be such as to provide good returns to the cane growers, sale at reasonable prices to the public and a reasonable profit to the government for its investment.

7. Pharmaceutical Industry

Burma's requirements for pharmaceutical products is relatively small, but it is growing rapidly as people become aware of the need for improved medical care and balanced nutrition. For all of its requirements, Burma is dependent on imports. In 1955, imports of pharmaceuticals totalled about K 34 million. During the last war, when Burma was cut off from most of the sources of pharmaceutical supplies, a large number of our people suffered from the short supply of medicines. The Pharmaceutical Industry, by replacing more than half of the imported pharmaceutical products, will tend to reduce this dependence on imports.

8. The pharmaceutical industry located at Gyogon, will manufacture most of Burma's medical requirements of yeast, vitamins, alcohol, biologicals and sera. The total cost of the project is estimated at about 40 millions, less than K 1 million of which remains to be paid under the Four Year Plan. A pilot plant containing temporary production units useful for training purposes has been in operation for some time. The main production lines will be started this year, and full production should be reached by 1957.

9. Textile Plant (Thamaing)

This plant was completed in 1951 and now contains 20,000 spindles and 200 looms. A major expansion of this mill has been initiated, which will double the number of spindles and looms. The expanded mill will produce 3.4 million pounds of No.20 yarn annually, and 4.05 million yards of cloth, consisting of drills, canvas, towelling and sheetings. The total cost of the expansion project is K 15 millions, most of which is provided under the Four Year Plan. Work was started last fiscal year and plans call for the completion of the project by the end of 1957.

10. Tea Blending and Packing Factory

This project was initiated in 1954-55 to meet Burma's requirements for tea, all of which was imported in the prewar period. The factory, located at Mandalay, was completed last year, and production of packaged tea has already started. This year, it is expected that about 2 million pounds of tea will be blended and packaged, compared with an annual requirement of about 3 million pounds of tea. Under the Four Year Plan, additional equipment will be purchased, so that when full production is reached, substantially all of Burma's tea requirements will be blended and packaged by this factory. This will result in import savings of about K 5 million a year.

11. Sericulture

Burma is developing a silk industry, including the growing of mulberry trees, the breeding of the worms and the processing of the cocoons. The Sericulture project includes, in addition to the expanded cultivation of mulberry trees, the erection of a silk worm rearing house and silk reeling centre at Maymyo and silk filatures at Maymyo, Loikaw and Myitkyina. When these are completed there will be 3,000 acres of mulberry trees, and the three reeling factories will each produce 200-300 lbs. of raw silk yarn per working day, or a total annual capacity of 1,500 bales (202,500 lbs.). The total cost of the project is K 11.5 million, about K 1.2 million of which will be provided in Four Year Plan. The entire project will be completed by 1959-60. Some parts of the project are already in operation.

12. Steel Mill

The government began constructing a steel rolling mill at Ywama, Insein district, in 1953-54. It consists of electric furnace and rolling facilities capable of producing annually 20,000 tons of such products as light steel shapes, bars, sheets, and wire products. The rolling and wire products sections have been completed, while the electric furnace will be ready for operation by the end of this fiscal year. The total cost of the present mill is estimated at over K 42 millions, most of which was expended in the previous three years. In addition, the Four Year Plan includes a survey of the possible expansion of steel facilities, including the development of a blast furnace to utilize the iron ore found in Burma.

13. Cement Mill Expansion

The nationalized cement mill at Thayetmyo now has a capacity of 60,000 tons a year, or about one half of Burma's current requirements. The Four Year Plan provides for trebling this capacity, which will be sufficient to meet Burma's expanding needs for cement. Contracts have been let for the machinery and construction, and the additional capacity will be in production by 1957-58. The total cost of the project is K 48 millions, practically all of which will be spent in the next four years. This includes the cost of special barges required to haul the cement in bulk and the bulk loading plants that will bag the cement in Rangoon.

14. Jute Bag and Twine Mill

Burma is at present importing annually about 40 million gunny bags. As the rice crop increases, the demand for gunnies will increase. The government has therefore practically completed the construction of a plant with a capacity sufficient to produce 24 million heavy "C" gunny bags per year. The plant consists of a silver spinning high production jute bag mill, with 508 semi-automatic flat looms and 12 circular looms. The total cost of the plant is estimated at K 35 millions, of which all but K 3 millions have already been expended. Preliminary operations have already begun at the mill, and full production will be reached by 1958-59. Not only will this mill eliminate the need for importing gunny bags, but it will also provide a stable and profitable market for a relatively new crop in Burma, the growing of jute. In this, the jute bag and twine mill illustrates the manifold advantages of the best type of industrial project, one which provides a market for a new crop, new jobs for workers and essential commodities at a reasonable cost.

15. Brick and Tile Factory

This plant is designed to produce 6 million tiles and 4 to 8 million bricks annually. All major buildings required for the manufacturing process have been completed and the equipment installed. The production of bricks and tiles on an experimental basis has begun in pilot kilns. The two major kilns are being constructed and the project should be in full operation this fiscal year. The total cost of the project is estimated at K 9.8 millions, practically all of which was spent before the current fiscal year. The Four Year Plan provides funds for the completion of the project and for increasing its operation to capacity levels.

16. Cottage and Small Scale Industries

The government of Burma recognizes the important part in the economy played by cottage and small scale industries. Recent studies indicate that over 92,000 persons are employed in plants having less than 10 workers, and a great many more are employed in household manufacturing activities which can be dovetailed with agricultural employment. The government is determined to encourage the development of these industries and to make them more profitable by:

a. Ensuring that the supplies needed are available in ample quantity and at reasonable prices.

b. Making available new equipment and spare parts for use by cottage and small scale industries.

c. Encouraging cooperative marketing and cooperative purchases of raw materials and supplies.

d. Making credit and foreign exchange available for the procurement of new equipment to improve production.

e. Developing pilot plants and training centres which will provide experience and guidance to existing industries and make possible new types of industries.

17. To achieve these objectives, the Government will continue to operate and develop small scale industries as pilot plants and training centres. There, Burmese workers will be taught modern methods and techniques in the use of up-to-date machinery and equipment. The following projects are included under the Four Year Plan.

a. Pottery Plant (Moulmein)

Training in the manufacture of tableware and low tension insulators required by the marked expansion of electric power in Burma. The planned capacity is 800 pieces per day, using modern equipment. The project is completed and has been operating since April 1955. At present, twenty persons are undergoing training at the project.

b. Tile Plants (Moulmein, Kyaukmyaung and Prome)

These pilot plants are designed to train local people in the production of low cost non-inflammable roofing tiles.

The plant at Moulmein has been completed and the other two plants will be completed under the Four Year Plan. Each plant will have a capacity of 3,000 tiles per day.

c. Textile Printing Centres (Rangoon, Amarapura)

These centres train local people in modern methods of screen printing of textiles. The Rangoon centre has completed training its fifth class of students, while at Amarapura the second class of students was recently graduated.

d. Sugar Plant (Bhamo)

This pilot plant trains local people in methods of providing sugar, using modern small scale equipment. The plant has a crushing cpacity of 30 tons per day and has been operating since January 1955. A second plant is being built at the IDC Industrial Engineering Centre.

e. Power Looms Training Centre (Amarapura)

Twenty power looms have been established at this centre to provide training in the use of power looms in cottage industries. After a short period of training, the workers are encouraged to engage in their own enterprises, using the latest power equipment and producing cloth at costs far below those of hand loomed cloth.

f. Hand-made Paper Training Centre (Lashio)

A market exists for locally produced paper, and this home manufacture can provide useful and remunerative employment in many villages. The centre has a daily production capacity of 30 viss of paper, or about 3,000 sheets. Two groups of trainees have already been graduated.

g. Lacquerware Training Centre (Pagan)

A training centre to revive and improve the making of lacquerware in Burma has been established. Construction of one studio has been completed and another one is being planned.

h. Condensed Milk and Butter Plant (Maymyo) -

The development of a dairy industry in Burma is very important, both to provide additional income to farmers and as a measure to improve the nutrition of the people. This pilot plant has a capacity of 400 - 600 gallons of raw milk per batch. It provides condensed milk and butter on a semi-commercial basis and provides training to local people in order that they may establish similar cottage industries.

i. Electroplating Training Centre (Insein)

Training in this modern technique will provide the opportunity for many small businesses and add many employment opportunities. Training has begun in temporary quarters, which will be improved under the plan to expand cottage and small scale industries.

j. Silk and Rayon Weaving Training Centres (Shwedaung, Amarapura)

This centre is part of the government's programme to increase domestic textile production through encouraging small scale industries. Construction of the buildings have been completed at Amarapura and tenders have been initiated for the construction of the buildings at Shwedaung.

18. The total capital cost of this programme for the development of cottage and small scale industries is estimated at K 3.5 millions during the next four years. This total does not include the cost of operating the projects where the sale of the products does not cover the training costs. Nor does it include the loans made to small enterprises, to permit them to acquire more modern equipment. Under the Four Year Plan, the government proposes to intensify its efforts to improve and encourage small industries amd cottage enterprises.

19. Industrial Sites Development Project

In order to provide useful sites to industry, the Government is developing several large tracts, the Insein Tract, Thamaing tract, Simalaik tract and the Dawbon tract. Work was started in 1954, and consists of making general surveys, river sounding surveys, road and drainage planning and similar activities required to prepare land for industrial use. The Four Year Plan provides for the continuation of this work at a pace that will provide appropriately planned sites for all the industries included in the Plan.

C. New Industrial Projects

20. Textile Industries

By far the largest essential commodity imported by Burma is processed cotton, either as cotton yarn or cotton fabrics. At the same time, Burma grows some cotton and has the climate and soil to expand this cotton production to many times its present level.

Cotton Yarn and Fabric Imports - Burma

Year	Cotton Yarn (Millions of lbs.)	Cotton Fabric (Millions of Yards)	Total Value (Millions of Kyats)
1952-53	14	147	189
1953-54	17	144	185
1954-55	12	95	133
1955-56*	22	88	155

* Preliminary.

It is estimated that to meet Burma's annual needs for cotton yarn and fabric would require over 350,000 spindles and over 7,500 looms. The spinning capacity in Burma, both government and private, is only a small portion of this. With the land and labour resources to grow more cotton, there is an opportunity for a profitable expansion in both agriculture and the textile industry.

21. However, expansion of the textile industry must be carefully evaluated and kept within reasonable bounds. Too rapid an expansion could leave Burma with a high cost industry that would require a continuing subsidy in order to remain in business. Subsidies of this sort are often hidden, taken the form of abnormally high duties, import quotas, or tax concessions, but if they are a continuing necessity, they represent a cost to the economy that it would be wise to avoid. Consequently, the expansion of the textile industry must be geared to efficient production which will permit the products to be sold at prices that are competitive with imported textiles.

22. The Four Year Plan provides, in addition to the expansion of the Cotton Spinning and Weaving Factory at Thamaing, for the construction of three new textiles plants. Each plant will have 40,000 spindles and 200 looms. Together with the Thamaing factory, this will provide 160,000 spindles and 800 looms. Thus, by the end of the Four Year Plan, Burma will be producing a large part of its textile requirements. After these mills have been placed in operation, and experience gained in their management, it will be possible to evaluate the desirability of further expansion.

23. Two of the new textile mills, it is anticipated, will be joint-ventures established under the Japanese Economic Development Fund. The other mill is to be a national enterprise, fully owned by the government. The total cost of the three mills will be K 60 millions, of which K 4 millions will be provided by the Japanese parties to the joint ventures and K 56 millions by the Government of Burma.

24. Soap

Burma's import of soap during the pre-war period was about 4,500 tons annually. Since most of the materials required for the production of soap are readily available in Burma, the Government has entered into a joint venture with Unilevers Ltd., London, to construct a soap factory with an annual capacity of 5,000 tons. The total cost of the project is K 8 millions, of which the government will have a 25 percent share. Construction is to start this year and the plant should be in operation by 1958.

25. Rice Bran Oil Mill

Burma imports about 15,000 tons of edible oil annually. The rice bran oil mill included in the Four Year Plan will produce 14 tons of edible oil per 24 hour day, using 100 tons of rice bran, or an annual capacity of 2,850 tons of edible oil. All but K 1 million of the cost of this project may be received as aid under the Colombo Plan.

26. Rubber Products Plant

This project in the Four Year Plan will be established to process the rubber produced in Burma which is now exported and later reimported as finished products. The plant will have an annual capacity of 2,400 tons of products, comprising about 78,000 passenger and truck tyres, 47,000 passenger and truck tubes and 100,000 bicycle tyres. The total cost of the project will be nearly K 18 millions, and as a prospective joint-venture, the government's share of the cost will be about K 11 millions.

27. Asbestos Cement Roofing and Piping Plant

With the expansion of the cement mill at Thayetmyo, there will be sufficient domestic cement to supply a plant for fabricating asbestos sheets, tiles and pipe. These products, now mostly imported, are needed in construction to replace the less durable and less fire resistant materials now being used in Burma. The project, which will be a joint venture, will cost K 5.6 millions and will be completed by 1959-60.

28. Fertilizer Mixing Plant

The discussion in the sections of the Four Year Plan devoted to Agriculture and Irrigation development emphasize how important it is to increase the efficiency of agricultural production in Burma. An important part of increased production must come from the increased use of fertilizer. To encourage this development, the Government will establish a fertilizer mixing plant, which will make available increased and steady supplies at reasonable prices. The plant will include crushing facilities for phosphate rock, sulphuric acid treatment facilities and mixing machinery for producing a mixed fertilizer containing superphosphates and ammonium sulphate. The plant will have a capacity of 50,000 tons of superphosphates a year, which, when mixed with imported ammonium sulphate, will yield 100,000 tons of mixed fertilizer a year. Of the total cost of K 5.5 millions, Burma has received from New Zealand under the Colombo Plan £ 100,000 sterling (K 1.33 million) towards the cost of this project. Additional funds will be made available, and the Four Year Plan includes only K 2 millions as coming from Burma's resources.

29. Steel Mill Expansion

The Four Year Plan provides funds for surveying the feasibility of an expanded steel industry in Burma. Iron ore deposits have been found, and their extent is being explored by the MRDC. Careful engineering and economic studies are required to determine whether the iron ore can be transported to a smelter at reasonable cost, whether the right type of coal is available and whether a blast furnace can be built which could produce pig iron at a reasonable cost.

30. Paper Mill (Survey only)

The paper requirements of Burma are large and are increasing. During 1954-55, imports of paper and paper products, exclusive of newsprint, were 17,000 tons, valued at nearly K 20 millions. To meet part of this need, the Four Year Plan includes a survey for a paper mill, using bamboo as the raw material. The project will have a capacity of 15,000 tons of paper annually and may cost as much as K 60 millions. If the survey is successful, the project will be established as a joint venture with a foreign firm experienced in paper production, and funds will be provided by adjusting other parts of the Four Year Plan.

B. Private Industrial Development

31. In mid-1955 the government announced its policy with respect to private investment. In that policy statement the government recognized the contribution which productive private investment can make to the economic and social progress of the country.

32. The response of domestic investors has been gratifying and its magnitude unexpected. During the past year the requests for import licenses for machinery to be used in local manufacturing enterprises have exceeded by a substantial amount the levels of earlier years. The government has therefore increased substantially its foreign exchange allocations for this purpose.

33. In the current year the desire of individuals and companies to invest their own funds in productive enterprise again shows a substantial increase. Concrete private investment proposals in the industrial field which are already in the hands of the government are estimated to total more than K 25 crores of non-government capital expenditure. This is not all the private

productive investment that may be expected in the coming years. It is only that part which requires a government action in the form of an import license for machinery or a hire purchase loan to supplement the funds put up by the private investor. Total planned investment in private industry will continue to increase if conditions conducive to it continue to improve.

34. The government recognizes the importance of private investment in achieving the objectives of its Four Year Plan. It further accepts the responsibility for facilitating this productive investment in a number of positive ways. To this end it will, among other things:

a. Propose to Parliament on Investment Law designed to provide incentives to private and foreign enterprises for investment in Burma's industries.

b. Such pri
b. Such private industry participation in developing and improving the industry sector of the Four Year Plan.

c. Programme the foreign exchange required to pay for the machinery and equipment which private enterprise needs to develop productive enterprise.

d. Strengthen and expand its industrial loan programme to private manufacturers.

e. Improve and broaden the technical assistance which it is now providing to business men.

f. Expand and accelerate its programme of providing improved industrial sites.

g. Streamline its procedures in order to reduce the number of government permits and approvals that a business man must obtain to do business. It will also seek to reduce to a minimum the delays involved in obtaining necessary government clearances.

35. Programming Foreign Exchange for Private Industrial Investment

During the last two years the government has not been able to make sufficient foreign exchange available to meet the requirement of private investors. Under the new Four Year Programme the government will make every effort, within the limits of overall foreign exchange availability, to meet the needs for productive machinery in industrial enterprise. In the foreign exchange allocations under the Four Year Plan, the government will allocate up to K 10 crores a year, if necessary, for the import of machinery by private dealers and business men. Imports of this magnitude will mean a sharp increase in the level of private investment. It would also mean a substantial rise in the level of industrial output, as well as a reduction in the imports of certain finished goods for which Burma is now dependent on foreign suppliers.

Expansion of private industrial activity to the desired levels will require concerted effort by both private investors and the government. For private investors it provides both an opportunity and a challenge. It is the goal of the people and the government to move towards industrialization at the fastest possible pace consistent with practicality. Private investors and industrial producers are being given an opportunity to make a major contribution toward achievement of this goal.

36. Adequate Foreign Exchange and Prompt Issuance of License

As a first step in this programme the government is immediately making available K 8 crores of foreign exchange against which license applications and hire-purchase applications will be issued as rapidly as the necessary review can be completed and the papers processed. It is expected that industrial importers will complete the arrangements for bringing in the machinery and beginning production as rapidly as possible. In order that all may know the exact status of the programme, the Ministry of Industries will issue lists of all licenses approved naming the successful applicants and the types of machinery to be imported.

37. Government Financial Assistance

Recognizing that the substantial expansion of industrial activity have envisaged may in some cases be beyond the financial or technical means of those who desire to start new industries or expand old ones, the government plans to expand its services to industry.

At the present time it is possible for a private manufacturer in Burma to acquire capital equipment under most favourable terms if he can prove that he has the plans and the ability, and can command the local capital resources required to make efficient use of such equipment.

Established in October 1955, the Industrial Loans Board had, by September 30, 1956 approved loans to 195 companies totalling K 13,402,000, or an average of K 70,000. In turn the private entrepreneurs have pledged K 16,450,000 for land, buildings, and operating capital.

In August 1956 a second announcement was made that applications for hire-purchase loans would be received. By the end of September over 700 loan applications had come in, totalling K 6.3 crores. This amount was matched by K 7.8 crores of private investment intentions. These new applications will now be screened and those which are credit-worthy will be approved.

Plans are now being developed to convert the Industrial Loan Board into an Industrial Bank with private capital participation. The International Bank for Reconstruction and Development may be called upon to assist in this task. In addition to Barter and Reparations credits, some of the funds from the U.S. loan may be made available as initial capital for the new bank.

38. Government Technical Assistance

The granting of loans for mechanical equipment will be parallelled by provision of the technical services required by private companies to assure efficient utilization of the equipment. The Directorate of Industries and the Union of Burma Applied Research Institute have both recently established technical service divisions. Thirty private business men have been selected for practical training abroad in early 1957. These technical services will be expanded to meet the needs of all Burmese industry, not just those which receive loans from the Industrial Bank.

39. Provision of Industrial Sites

The government recognizes that lack of adequate industrial sites constitutes an important impediment to the development of Burmese industry. A programme has been initiated by the Ministry of Industries to make adequate industrial sites available to private industry on a long term rental basis. This programme will be given new emphasis and additional funds will be provided if that becomes necessary. Private investors desiring industrial sites on a long term lease basis are invited to submit their applications to the Ministry. In the Thamaing area, sites have been assigned. Private funds have been made available for site development and plant construction is already underway.

40. Streamlining Procedures

Private business must recognize its social responsibilities to the people of Burma. It must develop a code of business ethics adequate to the social and poltical conditions of the 20th century. Government in turn must establish the broad rules under which private business may profitably be conducted in Burma. But the government also has a responsibility to the people of Burma to avoid unnecessary regulations and bureaucratic delays which slow up industrial expansion or reduce production. The government will in the first instance attempt to foster and encourage maximum production, because only in this way can the level of living of the average Burman be raised. What is never produced cannot be shared.

Many unnecessary procedures have been carried over from pre-Independence days. Other delaying procedures have been added in the past eight years. It is time to take stock and cut away that which is useless and obsolete. This is particularly important in the industrial field. The government will review its rules, regulations, laws and procedures affecting private industrial activity, and make changes for their streamlining and simplification. In carrying out this task, it will, of course, consult freely with industry.

Agency: INDUSTRIAL DEVELOPMENT CORPORATION

(In Millions of Kyats)

Projects Name or Description	1956-57 Total	1956-57 Foreign Exchange	1957-58 Total	1957-58 Foreign Exchange	1958-59 Total	1958-59 Foreign Exchange	1959-60 Total	1959-60 Foreign Exchange	TOTAL Total	TOTAL Foreig Exchang
Projects that have been started										
1. Sugar Mills (2)	3.0	1.0	-	-	-	-	-	-	3.0	1.0
2. Pharmaceutical	-	-	.7	.6	-	-	-	-	.7	.6
3. Textile Plant (Thamaing) Expansion	10.0	8.0	-	-	-	-	-	-	10.0	8.0
4. Tea Blending and Packing	.2	.1	-	-	-	-	-	-	.2	.1
5. Steel Mill (Present plant completion)	4.0	2.8	2.0	1.0	2.5	1.0	-	-	8.5	4.8
6. Cement Mill (expansion)	11.0	10.0	23.0	16.0	6.0	6.0	-	-	40.0	32.0
7. Jute Bag and Twine	2.0	1.5	.5	.1	.5	.1	-	-	3.0	1.7
8. Brick and Tile	2.5	.4	-	-	-	-	-	-	2.5	.4
9. Sericulture	.7	.4	.2	.15	.2	.15	.1	-	1.2	.7
0. Cottage & Small Scale Industries	.5	.5	1.0	.5	1.0	.5	1.0	.5	3.5	2.0
1. Industrial Site Development	-	-	1.0	-	1.0	-	1.0	-	3.0	-
2. Other a/	9.8	8.2	1.1	0.9	0.2	-	0.2	-	11.3	9.1
New Projects										
13. Textile Plants	3.0	-	17.6	13.0	17.7	13.1	17.7	13.1	56.0	39.2
14. Soap Factory	.5	-	.5	-	-	-	-	-	1.0	-
15. Rice Bran Oil Mill b/	.4	-	.3	-	.3	-	-	-	1.0	-

(Contd. on next page)

* Includes Brick and Tile Board.

a/ State Brewery, Zeyawaddy Sugar Mill, IDC Workshop, Chief Engineer (Works), and Compensation.

b/ Additional funds to complete the project will be received under the Colombo Plan.

Agency: INDUSTRIAL DEVELOPMENT CORPORATION (contd.)

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Forei Exchan
16. Tyres and Tubes Plant	-	-	6.5	3.5	2.4	2.0	2.1	2.0	11.0	7.5
17. Asbestos Cement Roofing & Piping	-	-	1.3	1.0	3.0	2.5	1.3	.5	5.6	4.0
18. Fertilizer Mixing Plant b/	-	-	1.0	-	1.0	-	-	-	2.0	-
19. Steel Expansion (Survey only)	-	-	.5	.3	.5	.3	-	-	1.0	.6
20. Paper Mill (Survey only)	-	-	.3	.2	.2	.1	-	-	.5	.3
21. Other Industrial surveys	-	-	.3	.2	.3	.2	.3	.2	.9	.6
Total (Exclusive of loans)	47.6	32.9	57.8	37.45	36.8	25.95	23.7	16.3	165.9	112.6
22. Industrial loans	15.0	10.0	20.0	15.0	30.0	25.0	35.0	30.0	100.0	80.0
Total (including loan funds)	62.6	42.9	77.8	52.45	66.8	50.95	58.7	46.3	265.9	192.6

b/ Additional funds to complete the project will be received under the Colombo Plan.

"PYIDAWTHA" DISCRETIONARY GRANTS

1. As part of its plan to decentralize authority, the Government of the Union of Burma has encouraged local authorities to share the responsibility for planning and executing local improvements. The Pyidawtha Discretionary Fund makes grants for minor local projects selected and supervised by local authorities. Each township is given K 50,000 and these grants are generally supplemented by local donations of cash, materials and labour. The projects include village wells, tanks and ponds, primary schools, libraries, community buildings, bridges, village roads and irrigation and drainage projects. The table below shows actual expenditures (Government and public construction) under Pyidawtha Discretionary Grants, as reported by township committees. Schools and roads appear to be the favourite types of projects, absorbing about two-fifths of the total cost.

Expenditure Under "Pyidawtha" Discretionary Grants
(In Thousands of Kyats)

of Project	1952 - 53		1953 - 54		1954 - 55	
	Number	Cost in Kyats	Number	Cost in Kyats	Number	Cost in Kyats
	1,782	1,745	1,312	1,361	1,885	1,537,695
ponds	1,547	2,204	1,060	1,758	.940	1,727,652
nitary projects	543	437	1,289	881	916	630,418
	1,393	4,749	1,791	7,211	2,029	7,942,059
	429	564	402	606	434	666,859
ildings	379	392	179	309	280	443,243
ridges, etc.	2,105	4,429	1,957	3,965	1,929	4,439,021
ion and Drainage	762	1,866	553	1,218	791	1,951,654
llaneous	-	-	123	217	386	314,983
Total	8,940	16,386	8,666	17,526	9,090	19,653,584

: 1955-56 data are incomplete

2. These projects are small, but their impact is felt throughout Burma and they represent visible evidences of Government interest in even the smallest of villages.

3. The amount budgeted for Pyidawtha Grants was reduced in 1955-56 to K 5 million, about half the annual amount previously budgeted. This reduction was maintained in the present fiscal year.

	Budget Estimates (In Millions of Kyats)	Expenditures
1952-53	9.8	9.2
1953-54	11.0	9.8
1954-55	11.0	9.4
1955-56	5.0	n.a.
1956-57	5.0	n.a.

4. Under the Four Year Plan, it is proposed to provide K 30 millions for Pyidawtha Grants, increasing the annual allotments until K 10 million is made available in 1959-60.

Agency: **PYIDAWTHA GRANT PROGRAMME**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Local Projects	5.0	-	7.0	-	8.0	-	10.0	-	30.0	-

[illegible]

BUILDING CONSTRUCTION UNDER THE FOUR YEAR PLAN

1. The agencies included in this group are concerned largely with construction of buildings and other facilities. With few exceptions, notably housing projects, these buildings and facilities when completed are turned over to other agencies for operation and use. Buildings constructed directly by operating agencies are excluded from this group. Thus, the projected expenditures in this group of agencies understate the funds that will be devoted to building construction under the Four Year Plan.

2. The agencies or projects included in this group are:

Part I - Housing and Selected Community Programmes (National Housing Board)
Part II - Special Projects Implementing Board
Part III - Russian Projects
Part IV - Highway Department - Buildings
Part V - Buildings (Other Departments)
Part VI - Prime Minister's Office Building

PART I - HOUSING AND SELECTED COMMUNITY SERVICE PROGRAMMES

General

3. The National Housing is the major construction agency of the Government. Out of the funds allocated to the Board, it constructs houses as well as schools, hospitals, office buildings and all other types of buildings. It is also the principle construction agency of other departments and agencies which have received financial sanction for building construction. These works are called "Civil Works". The Board will also accept works from other Boards and Corporations on a deposit basis. For example, the Four Year Plan includes in the schedule of projected capital expenditures for the NHB funds for the completion of schools and hospitals already under construction. Funds for new schools and hospitals are included in the projected schedules for the Department of Education and the Ministry of Health. The Four Year Plan for the National Housing Board therefore understates by a considerable amount the funds that will be utilized by that agency for construction.

4. Only two new programmes of significance are included in the Four Year Plan for the NHB, the Low Cost Housing Programme and the Rangoon Water and Sewer Projects. The other projects represent completion of existing work under construction or the continuation of minor projects already in progress. The two new projects are discussed in detail in this section, while the remaining projects are mentioned only briefly, since little explanation is required of the need to complete buildings already under way.

Housing Programmes

5. Under the Four Year Plan, the housing activities of the Government will be limited to:

   a. Completion of existing buildings now under construction in Rangoon and the Districts.

b. Development of low cost housing projects, designed to provide housing for workers, and requiring a minimum of government subsidies.

c. Staff quarters for essential workers who must reside at the projected site.

6. Rangoon Housing - The Four Year Plan provides only K 1.5 millions in 1956-57 for the completion of buildings begun in previous years.

7. District Housing - The Four Year Plan provides K 8.7 millions to complete these projects. The work has been extended over a period of several years, but is definitely limited to projects already initiated.

8. Low Cost Housing - Several methods or schemes of construction will be used, in order to test which method gives the best result.

a. Government construction of several types of standard houses

b. Government provision of improved site, with individuals constructing their own houses under strict zoning regulations.

c. Government provision of improved site, with housing loans to individuals or credit sales of important building components (roofing, timber, etc.) and individuals building their own houses, under strict zoning regulations.

9. Low Cost Housing - This housing programme is aimed primarily at providing a basic minimum standard of accommodation for the lowest income categories. The basic accommodation for each family would consist of a living room with 120 sq. ft. of area, a bedroom or sleeping alcove of 100 sq. ft., and individual kitchen, bathing and sanitary facilities, the whole to be approximately 400 square feet in area.

10. There is a great need for a long term minimum accommodation housing programme in Burma designed to accomplish the following purposes:

a. To provide housing for workers in new industrial areas.

b. To replace the worst of the extremely substandard (slum) housing that has developed in most urban areas as a result of refugee influx and war damage.

c. To replace substandard housing destroyed by fire in order to prevent the reconstitution of slum areas.

d. To ascertain through research and the construction of model housing groups the materials, construction methods and designs most suitable to Burmese conditions of income availability, labour, climate and social habits.

e. To reduce the cost per housing unit through standardization of materials and designs, improved construction methods, increased utilization of local materials and increased labour productivity.

11. Scope of Programme - Despite the obvious need for low-income-group housing, the limitations imposed by the financial resources of the Government and the competition for these resources by other development programmes must be recognized. In view of the funds necessary for transportation and communications improvement, industrialization, irrigation, water resources and power development, education, etc., the housing programme in the current Four Year Plan must necessarily be of limited scope. Fortunately the climate of Burma is such that sub-adequacy in accommodation and convenience does not usually entail the exposure hardships that occur in a more rigorous climate. However, the economic aspects of improved housing should not be overlooked.

12. Aside from the social desirability of better standards of accommodation and convenience for low income groups, there is an undeniable relationship between improvement in worker productivity and the improvement in health and general well being which follows as a result of adequate housing with water supply, sewerage and other conventional amenities. From this standpoint a satisfactory housing programme becomes an economic and necessary adjunct of all development programmes.

13. The various development programmes must be kept in balance with the housing programme, otherwise each new development will be an inducement for the erection of more sub-standard houses which will quickly become slums. The Four Year Housing Programme is considered the minimum requirement to prevent the erection of new potential slum areas in the vicinity of new industries and the replacement of houses lost in major fire disasters. Except for fire loss replacement, the current Four Year Housing Programme does not contemplate the redevelopment of existing slum areas.

14. The number of minimum standard houses (400 square feet) per year contemplated by the programme is 1500. This will require an expenditure of K 10,000,000 or one crore per year, distributed as follows:

a. Site Development - Estimates made for a 3000 unit housing development in the Greater Rangoon area indicate an average per unit cost for land acquisition, walks, roads, drains, water supply and sewage of approximately K 1,000. However, since in the early stages of a housing development many expenditures are incurred on the basis of the future overall plan such as main access roads, trunk sewers and water mains, it is considered desirable to allocate in this programme K 1,500 per unit for site development.

b. **Housing Units** - Basic construction costs for housing units providing 400 square feet of accommodation vary from K 2,400 to K 5,400, depending on whether the materials used are considered semi-permanent or permanent and whether units are constructed singly or in flats. The housing projects carried out under current four year programme are to be planned for various typesof construction and careful cost records kept to ascertain the economics of each type. In developing the budget for the programme a medium cost of K 4,000 per housing unit was used for basic construction.

c. **Utilities** - The following allowances are made for utility connections to the housing units:

(a)	Water supply including shower and kitchen fixture	K 300
(b)	Sewer connection including sanitary facility	K 450
(c)	Electric connection and wiring	K 350
	Total for Utilities	K 1,100
(d)	Total Unit Housing Cost	
	Site Development	K 1,500
	Basic Construction	K 4,000
	Utilities	K 1,100
	Total	K 6,600

15. Distribution of Housing Projects - Considerable flexibility and discretionary administrative power will have to be exercised in the selection of housing project locations due to constantly changing conditions. For the purpose of the Four Year Plan it has been assumed that one half of the public housing erected during this period will be in the Greater Rangoon Area and one

only about 5 percent of the total population of the Union, this division of the housing projects is considered equitable because of the need in the Rangoon area generated by industrial construction and the enormous population growth of recent origin.

16. The following table gives the distribution and estimated cost of the housing programme. This schedule is, of course, subject of redistribution and adjustment in the light of actual experience and developments in the future.

17. Total Programme Cost

Capital Allocations to Low Cost Public Housing Programme
(Millions of Kyats)

Location	1957-58			1958-59			1959-60		
	No. Units	Total Kyats	F.E.	No. Units	Total Kyats	F.E.	No. Units	Total Kyats	F.E.
eater Rangoon	1000	6.7	1.3	750	5.0	1.0	500	3.3	0.7
ther Urban istricts	500	3.3	0.7	750	5.0	1.0	1000	6.7	1.3
otal	1500	10.0	2.0	1500	10.0	2.0	1500	10.0	2.0

C. Rangoon Water and Sewerage Project

18. The Four Year Plan provides for the initiation of a project designed to provide Rangoon with a modern water and sewerage system, sufficiently large to meet the needs of a growing population. While much of the engineering plans remain to be completed, sufficient work has been done to indicate the two broad lines of the project:

(a) Remedial measures, designed to give relatively quick improvement of present unsatisfactory conditions.

(b) Long range plans, which will incorporate the remedial measures, and which will provide adequate facilities for population growth.

Rangoon Water Supply - General Description of Existing Conditions

19. The present population of Rangoon is estimated to be close to 800,000 and growing at a rate of better than 2 percent per year. The public water supply available to this population is 27 million gallons per day or approximately 33 gallons per capita. This supply is augmented by several hundred private well installations, but it is doubtful whether the yield of all of these installations makes more than an additional 2 or 3 gallons per capita per day available to the general public.

20. It is estimated that the water quantity necessary in order to meet adequately the requirements of domestic supply, industry, commerce, shipping and public services is 60 gallons per capita per day. At this rate approximately 48 million gallons per day are required for the present population. This represents an increase of 21 mgd or 78 per cent over the existing supply. If a new city water supply is planned on the basis of meeting growth requirements only until 1975, a total of 72 million gallons will be required daily for the estimated population at that time. This represents an increase of 45 million gallons per day or 167 per cent over the existing supply.

21. The large excess of demand over existing supply, coupled with the probable poor condition of much of the distribution system, has led to a severe drop in water pressure with almost complete stoppage service in some sections. Simultaneous service to all parts of the city is presently impossible, and even under a system of rotating supply there is insufficient pressure to provide water to the upper floor of many buildings. This condition has resulted in the installation of numerous privately owned booster pumps, roof tanks and other storage receptacles with resultant wastage of both water and power. Since a large part of the population obtains water from hydrants and street taps, there is also a considerable wastage through hydrants

is on. The situation, therefore, is one in which there is a large basic shortage of water supply and a system condition which leads to a wasteful use of the supply that is available.

22. Interim Remedial Measures - It is obvious that with a shortage as severe as stated above, the only adequate solution is to develop new sources of water supply to meet the present and projected demands. Such developments will require at least 4 to 5 years for planning and execution before they can give relief to the Rangoon water shortage. Certain remedial measures may, however, be undertaken at an early date which will afford partial relief to the situation. The work involved in these remedial measures would in any event be a part of the overall rehabilitation of the existing water supply system, but may proceed independently without waiting for the major new resources development.

23. The execution of the interim remedial measures will provide a measure of relief to Rangoon through a modest increase (15 percent) in the delivery of water from existing sources, improvement in distribution by construction of additional balancing storage and feeder mains, the elimination of leakage losses and clogged and undersized service mains revealed by a proposed pitometer survey, and reduction of wasteful usage through repair of faulty hydrants, valves, pipe joints, etc., and provision of better facilities for the use of unconnected consumers.

24. The interim measures include:

a. Replacement of the Hlawga Pumps

The pumping station of the 42" Hlawga transmission line at Yegu was installed in 1909 with two steam driven pumps each having a capacity of 650,000 gallons per hour, and a third pump was added sometime later. At present only one pump is operating and its condition, because of its age, is reported as precarious. Failure of this pump would greatly reduce the eight million gallons per day presently delivered to the city from Hlawga Lake.

Replacement of the pumps at Yegu station is estimated to cost K 1,100,000 of which K 600,000 ($126,000) is required in foreign exchange. Replacement at a location other than Yegu might be desirable, but would probably be more costly.

b. Installation of the Gyobyu Booster Station

The 56" Gyobyu transmission main delivers 19 million gallons per day by gravity. The installation of a booster station on the line would permit the delivery of the full yield of the system which is given as 21 mgd. If the booster station is located at the reservoir headworks it will have the further advantage of being able to deliver the additional 4.0 mgd which may be brought into the system from the proposed Nyaunglebin development and to tap for emergency purposes the very large dead storage reserve in Gyobyu Reservoir.

The estimated cost of the Gyobyu Booster Station is K 2,200,000 of which K 1,200,000 ($252,000) is required in foreign exchange.

c. Installation of Additional Service Storage

At the present time the 20 million gallon Kokine Reservoir at the terminus of the Gyobyu and Hlawga Mains in North-east Rangoon and the 1 million gallon Shwedagon Reservoir are the only storage structures providing water for peak demands and emergency interruptions to supply. A site for an additional 20 mg of storage should be acquired on high ground on the N.W. side of the city. About half of this capacity should be constructed at present and for the time being be fed from the Gyobyu main. This additional storage together with new feeder mains would greatly improve distribution on the western side of the city.

The estimated cost of a 10 million gallon storage reservoir with connection to the Gyobyu main is K 2,600,000 of which K 950,000 ($200,000) is required in foreign exchange.

d. Installation of New Feeder and Service Mains.

Areas of known distribution deficiency may be relieved, in-so-far-as possible with the present supply, by the construction of larger capacity feeder and service mains. These mains would be a part of the new distribution network eventually to cover the city in accordance with a balanced engineering design.

The work of pipeline replacement and reinforcement will necessarily continue for many years, but it is believed that an initial allocation of K 1,500,000 of which K 800,000 or $169,000 is in foreign exchange, will be sufficient to provide relief for the worst areas.

e. Reduction of Leakage and Wasteful Water Usage.

Distribution may be further improved by the elimination of leakage losses through the replacement of defective hydrants, taps, valves, pipe joints, etc., as revealed by the pitometer survey. Also the wasteful use of water through hydrants and street taps by unconnected users may be reduced through the provision of communal off-street bathing and washing facilities with smaller diameter connections.

This work will doubtless constitute a continuing programme for a number of years. An initial allocation of K 800,000 is proposed of which K 500,000 ($106,000) would be in foreign exchange.

25. It will be necessary to provide the engineering services necessary for the preparation of contract drawings, specifications, bills of material, and tenders; for the review of

tenders and contractors' qualifications; and to supervise the pitometer survey (measures of actual flow through present mains). The estimated cost of this service is K 515,200 of which K 154,600 or $75,920 is in foreign exchange.

26. The construction phase of the Interim Remedial Measures is expected to require about 18 months for completion. However, with proper planning and coordination of the work, benefits from this programme could be derived in a much shorter period as each of the improvements is completed. The estimated cost of providing engineering supervision during the construction phase of the Interim Remedial Measures is K 595,900 of which K 396,700 or $83,500 is in foreign exchange.

27. The total estimated cost of the Interim Remedial Measures is as follows:

	Kyat Cost	F.E. Cost	Total Cost
Engineering for Plan - Preparation and Pitometer Survey	154,600	360,600	515,200
Construction and equipment total	1,150,000	4,050,000	8,200,000
Replacement of Hlawga Pumps	500,000	600,000	1,100,000
Gyobyu Booster Station	1,000,000	1,200,000	2,200,000
Storage Reservoir and Connection	1,650,000	950,000	2,600,000
Feeder and Service Mains	700,000	800,000	1,500,000
Leakage Repairs, etc.	300,000	500,000	800,000
Construction Supervision	199,200	396,700	595,900
Total Project Cost	4,503,800	4,807,300	9,311,100

28. Long Term Water Programme - Comprehensive Water Resources Investigation Report - Present proposals for the development of a major new water supply source for the City of Rangoon are based on the creation of a reservoir approximately 10 miles

north of the city known as the Hlawga Low Level Lake Scheme. The selection of this site was to a considerable degree influenced by questions of security and there are serious doubts about the dependability of the yield of the reservoir and the quality of the water. Further disadvantages of the site are the facts (1) that the water area of the proposed reservoir comprises 73 percent of the entire watershed, leading to excessive evaporation losses, (2) the delivery of water would be entirely dependent on pumping and (3) the project would put 15,000 acres of rice paddy out of production.

29. For the above reasons it is believed that a much more comprehensive investigation of the use of possible alternate water resources must be made before Rangoon is committed to the Hlawga Low Level Lake Scheme. In broad outline a report on such an investigation would contain the following information.

a. Study of population, industrial and commercial growth of the Metropolitan Area of Rangoon and analysis of probable water requirements to the year 2000.

b. Review of the capacity, physical condition and operation of existing supply.

c. Study of measures for augmenting the yield and improving the operation of the present system.

d. Comparative study of the engineering, geologic and economic feasibility of all water resources available to Rangoon including groundwater.

e. Water treatment and sterilization requirements

f. Transmission of supply to Rangoon

g. Findings and recommendations

30. A team of six foreign specialists would be required to work 4 months in Burma in conjunction with a local force of engineers, draftsmen, drillers and others in order to carry out the investigation. The foreign team would consist of a civil engineer with broad water supply experience who would direct the investigation, a hydrologist, geologist, hydraulic structure specialist, geophysicist and chief driller. The estimated cost of the Rangoon water resource investigation is K 607,000 of which K 225,800 or $80,300 is in foreign exchange.

31. Engineering Services for the Preparation of Contract Drawings and Specifications for a Major Water Supply Development. This project would provide the engineering services necessary to prepare the drawings, specifications and other contract documents for construction of the first phase of a major new addition to the Rangoon Water Supply in accordance with recommendations of the Comprehensive Water Resource Investigation Report. This work would cover:

a. Site and foundation investigations for structures and pipe lines including borings and laboratory analyses of samples.

b. Surveying and plotting of site topography, profiles, sections, etc.

c. Design of dams, dikes, diversion tunnels, spillways, intakes, headworks, stream diversions and other reservoir structures.

d. Design of pumping stations, booster stations, walls, etc., together with necessary power lines or engine motivators.

e. Layout of well fields together with well field piping and auxiliary pumping if necessary.

f. Design of water treatment and disinfection

g. Design of transmission mains and balancing storage reservoirs.

h. Analysis of distribution system and design of feeder mains

i. Foundation and structural design for all structures and pipelines

j. Preparation of construction drawings, specifications, bills of material, tenders and other contract documents

k. Review of tenders received and qualifications of contractors

l. Recommendations on award of contracts

32. With appropriate staff, the above work could be completed in approximately 12 months. The estimated cost of this engineering service is K 2,226,000 of which K 1,562,000 or $392,000 will be required in foreign exchange.

33. Improvements to Rangoon Sanitary Sewerage System - Existing sanitary sewerage facilities in central Rangoon are nearly 70 years old and in addition have suffered considerably from war damage and lack of adequate maintenance. In many locations sewage overflows on the streets due to clogged, broken or undersized mains. Large sections of the densely settled portions of the city are entirely unsewered. A major programme of sewer construction is required to completely remedy the unsanitary sewage disposal conditions in Rangoon, but certain immediate steps of lesser magnitude may be undertaken that would effect appreciable improvement and reduce the hazard to public health that the present situation creates. These interim steps are briefly described as follows:

a. Cleaning and flushing of entire system. A contract should be let for the removal of all deposits and debris from the sanitary sewerage system by flushing, rodding, scrapping, etc., using the most modern equipment designed for this purpose.

b. Replacement of manhole covers, repair of breaks, house connections, manholes, etc. New manhole covers should probably be of the locking type.

c. Replacement of the 39 existing obsolete ejector stations and the central compressor station. The number of stations should be reduced to a minimum through redesign of the collector system.

d. Replacement of undersized and badly damaged mains and laterals

e. Immediate extension of lateral sewers to areas of particular need

f. Improvement in sewage outfall discharge

34. The above work would be integrated with the long range programme of extending sanitary sewerage to all of the built-up portion of Rangoon, the construction of an interceptor system and eventual treatment of sewage before discharge into the Hlaing and Rangoon Rivers. It is estimated that approximately K 13,400,000 should be expended on the short term objectives during the next two years. Of this total K 5,000,000 or $1,053,000 will be required in foreign exchange.

35. Engineering services, both foreign and local, required the preparation of construction drawings, specifications, bills of material, tenders, and the review of tenders received and contractor's qualifications in connection with the above sewerage improvement programme will have an estimated cost of K 617,000, of which K 412,000 or $86,600 is in foreign exchange.

36. The coordination and supervision of the short term sewerage improvement programme will require additional foreign and local engineering services. The estimated cost of this

service is K 970,000 of which K 616,000 or $129,400 is in foreign exchange.

37. The total cost of the short term sewerage improvement is as follows:

	Total Kyats	Foreign Exchange (K)
Preparation of Plans	617,000	412,000
Construction	13,400,000	5,000,000
Supervision	970,000	616,000
Total	14,987,000	6,028,000

38. Comprehensive Sanitary Sewerage Plan for Metropolitan Rangoon - Previous proposals for extending the sanitary sewerage system of Rangoon have been confined to the municipal corporation area and contemplated a condition of permanent discharge without treatment into the tidal streams on the west, south and east of the city. The rapid growth of the city beyond the corporation limits has now created a metropolitan region which should logically be treated as a unit in planning all utilities and municipal services. A comprehensive sanitary sewerage plan for the Rangoon Metropolitan Area should therefore be prepared to replace the earlier proposals of restricted scope. Such a comprehensive plan should in general be based on the following studies:

a. Review of all previous studies and collected data

b. Study of population, industrial and commercial growth and trends

c. Development of basic design data and criteria

d. Topographic study

e. Study of tidal movements and stream flows

f. Determination of the need for treatment at present and in the future

g. Consideration of special design features applicable to conditions in Rangoon.

h. Comparative study of construction materials and methods

i. Economic study and development of construction stages

39. In addition to the comprehensive master plan for sanitary sewerage for Metropolitan Rangoon, which should serve as a guide for future development, contract drawings, specifications, bills of material, tenders and other necessary contract documents should be prepared for the built-up portions of Metropolitan Rangoon that are not being sewered under the short term programme. This work should provide complete construction plans including structural plans for trunk sewers, outfall sewers, laterals, pumping stations, force mains, screening stations and all other necessary structures. Specifications should contain detailed descriptions of materials and equipment, but should permit the use of alternate methods and types of equal acceptability.

40. The estimated cost of engineering services for the preparation of a comprehensive master sanitary sewerage plan and contract drawings and specifications as described above is K 2,053,000 of which K 1,550,000 or $326,700 is required in foreign exchange.

41. Town Water Supplies - Preliminary studies for water supplies for the towns of Prome, Myingyan, Magwe, Toungoo and Shwebo have been made, but additional studies are required to determine definitely the best and most economical sources of water which should be developed in each case. Following this contract drawings, specifications, bills of materials, tenders,

etc., should be prepared for each of the above towns. An additional 8 to 10 towns with pressing water supply problems should be investigated and reports prepared establishing the requirements, resources to be developed, preliminary layouts, types of equipment and estimated costs of construction and operation. The estimated cost of engineering services is K 1,825,000, of which K 1,330,000 or $280,000 is in foreign exchange.

42. Total Cost - The costs thus far outlined total K 30.9 millions, as follows:

	Total Cost	Foreign Exchange
	(In Millions of Kyats)	
1. Water System - Rangoon		
Interim remedial measures	9.3	4.8
Comprehensive Report Investigation	.6	.2
Engineering services for beginning Long Term Project	2.2	1.6
2. Sewer System - Rangoon		
Preparation of short term plans	.6	.4
Construction of short term plan	13.4	5.0
Supervision of short term condition	1.0	.6
Engineering services for Long Range Plan	2.0	1.6
3. Town Water Supply - engineering	1.8	1.3
	30.9	15.5

43. The Four Year Plan provides K 40 millions for the Rangoon Water and Sewage Project, of which K 20 millions is foreign exchange. The K 9.1 millions difference between this and

the sub-projects outlined above represent resources that will be made available for initiating the long range plan for both water and sewerage. The total cost of the long range project can not be estimated until engineering plans are under way, but a rough guess is about K 18 crores, of which K 12 crores would be for water and K 6 crores for sewerage.

44. The pace at which these long range projects will be prosecuted depends, to a large extent, on the resources that can be made available. In other words, the long range projects may be completed in 5 years or in 8 years. Actual construction work, once started, should be pushed as vigorously as possible, since deliberate delays in construction always result in large increases in cost. However, both the water and sewer projects, particularly in their distribution facilities, lend themselves to "phased construction". That is, the projects can be organized in specific parts, each of which, when completed, are useful by themselves and do not require completion of the whole project in order to begin yielding returns. The basic comprehensive plans will be available, so that each additional part will fit into an over-all plan for water and sewerage.

D. Bazaars

45. A total of K 4.7 million has been provided for the completion of planned work on two bazaars in Rangoon, while work on two others will be held mainly in sus ense. Bogale Bazaar will be completed in 1957-58 at a total cost of K 1.3 million. Baho Bazaar (total cost K 16 million) has been phased in a manner to complete one portion of the work by 1957-58. This first phase will cost K 4 million, of which K 1 million has been expended in earlier years. Expenditure during 1956-57 will be K 1 million, and in 1957-58, expenditures will be K 2 millions.

46. Only minor work, costing K 0.4 million, will be undertaken on the Godwin Road Bazaar (total cost K 3.5 million). No work will be started on the projected Lewis Street Bazaar (estimated cost K 1.4 million).

E. Public Buildings

47. A total of K 4.7 million has been allocated in the Four Year Plan for work on public buildings in Rangon. The major expenditure will be for completion, by 1959, of the six-storey government office building on Merchant Street. This building, begun in 1953, will cost approximately K 10 million in total. Expenditure will be K 2 million in 1956-57, K 2.2 million in 1957-58. K 0.5 million will be spent on the A.G.'s office, the Labour House and the R.D.T. extension, all of which work is in progress.

F. Schools

48. K 3.4 million is authorized for the completion of various school buildings now in process of construction and the building of an Adult University Building (K 1.5 million, to be completed in 1959). Location of schools to be completed, together with the expenditures authorized, is as follows:

a. Rangoon

i.	U Wisara Road	K	67,000
ii.	Boundary Road		30,000
iii.	Park Road		5,000
iv.	Godwin Road (Medical College Hostel)		174,000

b. Districts

i.	Chauk	40,000	
ii.	Mandalay	620,000	(S.T.T.C. and Medical)
iii.	Moulmein	38,000	(S.T.T.C.)
iv.	Minbu	100,000	
v.	Myanaung	2,000	
vi.	Zalun	130,000	
vii.	Twante	34,000	
viii.	Ye-U	120,000	(two schools)
ix.	Sale	40,000	(two schools)
x.	Monyo	100,000	(two schools)
xi.	Yonthalin	50,000	(two schools)
xii.	Mogok	25,000	
xiii.	Bogale	150,000	
xiv.	Myohaung	13,000	
xv.	Magwe	129,000	(Intermediate College)

G. Hospitals

49. A total of K 5 million is provided in the Four Year Plan for the completion of 17 district hospitals, payment of fees on U.C.M.C. (K 158,000), completion of the Central Medical Stores work in Rangoon (K 150,000) and completion of the Kemmendine Health Centre (K 115,000).

50. Location of the district hospitals to be completed, with expenditures authorized for 1956-57, are as follows: (An additional K 1.7 million is authorized for 1957-58, not specified for each hospital).

Myanaung	K 176,000	Sagaing	K 98,000
Tada-U	172,000	Katha	249,000
Mahlaing	40,000	Pakokku	166,000
Myittha	173,000	Madaya	80,000
Wetlet	213,000	Kyaukse	88,000
Yedashe	100,000	Yamethin	93,000
Pyawbwe	229,000	Myingyan	90,000
Ye-U	457,000	Nyaunglebin	70,000
		Kyauktaw	380,000

H. Town Water Supply, Roads and Drains

51. An authorization of K 0.4 million for minor works on roads and drains in the environs of Rangoon was made in 1956-57. For the last three years of the programme a total of K 11.4 million is allocated for the provision of water supply installations at Prome, Magwe, Myingyan, Shwebo, Akyab and Toungoo, together with some improvements at Moulmein, Yamethin and the Ananda Pagoda at Mandalay. Total cost of these water supply facilities is estimated at K 20 million.

I. Burma Broadcasting System

52. A total of K 5 million, spread over three years, is allocated

for the completion of the main BBS building and for the transmitting station in Rangoon. Total cost of the studio building is K 6.5 million and the transmitting station K 1.1 million.

J. State Development

53. In the Four Year Plan, K 0.8 million is authorized for development work in States, by the NHB, particularly water supply at Mindat and Falam. This is in addition to the funds provided under the State Government plans for development.

K. Circuit Houses

54. The NHB is allocated K 1.8 million for work on the Circuit Houses at Mandalay, Moulmein, Inle Lake and Pagan.

L. Model Villages

55. To complete work already begun, K 1 million is allocated for model village development, which will cover some additional work at Payagyi and minor road work at other villages.

PART II - SPECIAL PROJECTS IMPLEMENTING BOARD

56. This agency was established to construct several large construction projects, including

a. Burma Pharmaceutical Industry
b. Rangoon University - Engineering College
c. Rangoon Polytechnic Institute
d. Agricultural Research Institute
e. Forest Research Institute

57. The programme of the SPIB was curtailed in 1954-55 as a result of financial stringency, and the agency was directed to complete some of its projects on a smaller scale than had originally been planned. Construction of the Forest Research Institute was deferred, and buildings in other projects were eliminated or reduced in size.

58. Under the Four Year Plan, the SPIB is allocated K 12.5 million to complete the projects on which construction has already been started. Practically all construction will be completed in 1956-57, with only a small amount of work carrying over into 1957-58.

PART III - RUSSIAN PROJECTS

59. On 17 January, 1957, the Government of the Union of Burma and the Soviet Union entered into an Agreement for the design and construction of a series of projects whose total cost is estimated to be in excess of K 21 crores. This Agreement has been approved by the Parliament of the Union of Burma.

60. The projects consist of the following:

a. Technological Institute for 1,000 students and 100 post-graduates

Lecture building with an assembly hall and equipment
Laboratory building with equipment
Hostels for 800 students
Dwellings for teachers and assistants with 40 flats and 36 separate rooms for bachelors
10 one-flat cottages for professors
Transformer sub-station
All external facilities and utilities and development within the Institute territory

b. Hospital in Taunggyi for 200 beds with an out-patient department of 100 patients.
Main building for 100 beds with departments equipped with necessary facilities, namely therapeutic for 50 beds, surgical for 50 beds and an out-patient department for 100 patients.
Building for patients suffering from tuberculosis for 50 beds with equipment.

Isolation building for 50 beds with equipment

Subsidiary buildings:

i. Dwellings with a total floorspace of 1,000 sq. m.

ii. Hostels for trained nurses with a total floorspace of 1,000 sq. m.

iii. Kitchen

iv. Transformer sub-station

v. Ancillary building (laundry, boiler room)

All external facilities and utilities and development within the hospital territory.

c. Theatre of 1,800 seating capacity

The theatre building with an opera stage, stage facilities and an outfit for the audience hall. Refrigeration station. All external facilities and utilities and development within the theatre territory.

d. Cultural and Sports Complex (Ensemble)

i. Sports Constructions:

Stadium of the Olympic type of 50,000 seating capacity, with a sports arena and subsidiary premises under the stands;
Open air swimming pool with stands of 10,000 seating capacity;
Open air training grounds;
Entrances with booking offices;

ii. Building for agricultural exhibition. Main pavilion of the Union of Burma with necessary subsidiary premises;

iii. Buildings for industrial exhibition. Main pavilion of the Union of Burma. Main entrance to the exhibition territory with an office building and a "PEACE" Sculpture. Industrial show hall which could be used as a tennis-court of 5,000 seating capacity;
Open air theatre of 4,000 seating capacity;
Subsidiary constructions including a water-tower and transformer sub-stations;

iv. Conference-hall building of 1,000 seating capacity; and

v. Hotel with 206 apartments including 25 suites of de-luxe type and 9 flats for attendants.

All external facilities and utilities and development within the territory of projects mentioned above.

61. Projects for which only designs are purchased by Soviet Organizations include:

Cultural and Sports Complex (Ensemble)

a. Sports construction:

General lay-out of the territory with the design of levelling, all external facilities and utilities and development.

Sketch and detailed Project Reports for:

Velodrome of 10,000 seating capacity
Roofed sports-hall of 10,000 seating capacity
10 tennis courts

b. Buildings for agricultural exhibition:

General lay-out of the territory with the design of levelling all external facilities and utilities and development

Sketch and detailed Project Reports for:

Two entrances with booking-offices
Five pavilions of the States of the Union of Burma
Grain pavilion
Industrial crops pavilion
Cattle-breeding pavilion
Meterrological station.

c. Buildings for industrial exhibition:

General lay-out of the territory with the design of levelling, all external facilities and utilities and development

Sketch and detailed Project Reports for a fountain and other premises.

62. The priorities and time schedules for construction of projects are:

List of Projects	Beginning and Completion of the Construction.	
a. Technological Institute	1957	1960
b. Cultural and Sports Complex (Ensemble)		
Sports constructions	1960	1963
Building for agricultural exhibition	1959	1963
Buildings for industrial exhibition	1958	1963
Conference Hall building	1960	1962
Hotel	1957	1960
c. Hospital with an out-patient department in Taunggyi	1958	1961
d. Theatre	1959	1961

Note: The initial data required for the preparation of the designs and plans will be furnished by Burma to the Soviet designing organizations within the first quarter of 1957. The designing programmes will be considered by Burma within 3 months' time of their receipt from the Soviet designing organizations.

63. The above time schedule may be modified by mutual agreement.

64. The Government of Burma has agreed to provide all kyat funds required for the construction of these projects.

65. No cost estimates are included in the Agreement, and it is therefore particularly difficult to project how much will be expended during the period covered by the Four Year Plan. A rough estimate of total costs, made by the Technical Advisor, is in excess of K 21 crores, and these figures were presented to the Economic and Social Board. The Four Year Plan provides

K 69.6 millions for these projects, of which K 44.3 is to be in foreign exchange. These figures were based on the rough cost estimates and time phasing developed before the Agreement was finalized and will no doubt require adjustment as soon as the designs are completed and costed, and the actual construction schedule established. A Special Gift Projects Implementation Board has been established under the Ministry of Public Works and Housing. This Board will be the channel through which the necessary data will be furnished to the Soviet Organization, in order that phase may be drawn and cost estimates and time schedules prepared.

PART IV - HIGHWAYS DEPARTMENT (BUILDINGS)

66. The Department continues to perform the functions of serving as the government construction agency in the Chin Hills and and in areas where the National Housing Board does not have a field organization.

67. The Four Year Plan allocates K 8.6 millions for these buildings, of which K 2.0 millions are for Chin Hills Schools and Hospitals, while K 6.6 millions are for other areas. This provides for the amount reported by the agency as the minimum essential requirements for the areas concerned, and consists of numerous small buildings and improvements to existing buildings.

PART V - BUILDINGS (OTHER DEPARTMENTS)

68. In addition to the Civil Works construction provided in the budgets of the NHB and the Highway Department, the Four Year Plan provides over K 14 millions for buildings for other departments. The principal part of this, over K 11 millions, is specifically designated as Civil Works for the Police. The remaining K 3 million will provide for minor buildings in the Chin Hills, such as completing a Labour Welfare Centre, a Fine Arts School, a for weaving school at Mudon and similar buildings.

PART VI - PRIME MINISTER'S OFFICE BUILDING

69. The Four Year Plan includes K 3.3 millions for beginning the construction of an office building to service the many functions under the Prime Minister. The building is not scheduled to start until 1958-59 and will be completed after the period covered by the Four Year Plan at a total cost of about K 5 millions.

(In Millions of Kyats)

	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
	1.5	0.3	-	-	-	-	-	-	1.5	0.3
	2.0	0.6	4.0	1.5	2.7	0.9	-	-	8.7	3.0
	-	-	6.7	1.3	6.7	1.3	3.3	0.7	16.7	3.3
	-	-	3.3	0.7	3.3	0.7	6.7	1.3	13.3	2.7
	1.0	0.5	2.0	1.0	1.7	0.8	-	-	4.7	2.3
	2.2	0.6	2.5	0.7	-	-	-	-	4.7	1.3
	-	-	8.5	6.0	15.0	7.5	16.5	6.5	40.0	20.0
	0.4	0.1	3.1	1.4	2.8	1.4	5.5	2.7	11.8	5.6
	1.0	0.2	-	-	-	-	-	-	1.0	0.2
	-	-	0.6	0.2	0.6	0.2	0.6	0.2	1.8	0.6
	2.0	0.2	1.4	0.2	-	-	-	-	3.4	0.4
	2.2	0.2	2.0	0.2	0.8	0.1	-	-	5.0	0.5
	2.0	0.6	2.0	0.6	1.0	0.3	-	-	5.0	1.5
	0.4	0.1	0.2	0.1	0.2	0.1	-	-	0.8	0.3
	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	8.0	8.0
	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	4.0	4.0
	0.2	0.1	0.1	-	0.1	-	0.1	-	0.5	0.1
e	17.9	6.5	39.4	16.9	37.9	16.3	35.7	14.4	130.9	54.1
	-	-	1.0	-	1.0	-	1.0	-	3.0	-
	17.9	6.5	40.4	16.9	38.9	16.3	36.7	14.4	133.9	54.1

Projects Name or Description
1. Rangoon Housing: Completions
2. District Housing
3. New Low Cost Housing Project: Rangoon (3,000 units) Districts (3,000 units)
4. Bazaars, Rangoon (Bogale, Baho, Lewis St., Godwin Road)
5. Government Office Buildings, A.G. Office, Labour House, RDT
6. Rangoon Water & Sewerage Projects
7. Town Water Supply, Roads & Drains
8. Model Villages
9. Circuit Houses (Mandalay, Moulmein, Inle Lake, Pagan)
10. School completions
11. Hospital completions
12. BBS and Transmitter
13. Country Development in States
14. Roofing Sheets (credit sales)
15. Tools and Plant (NHB)
16. Economic Development and Minor Construction
Total - Exclusive of Loans
7. Housing Loans
Total

Agency: SPECIAL PROJECTS IMPLEMENTING BOARD

(In Millions of Kyats)

	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. B. P. I.	4.4	0.3	-	-	-	-	-	-	4.4	0.3
2. Engineering College	.5	0.5	-	-	-	-	-	-	.5	.5
3. G.T.I., Insein	.9	0.6	-	-	-	-	-	-	.9	.6
4. Polytechnic Institute	3.4	.8	-	-	-	-	-	-	3.4	.8
5. Agricultural Research Institute	1.1	0.1	0.5	-	-	-	-	-	1.6	.1
6. General Administration	0.2	-	-	-	-	-	-	-	0.2	-
7. Increased Costs	1.5	0.5	-	-	-	-	-	-	1.5	.5
Total	12.0	2.8	0.5	-	-	-	-	-	12.5	2.8

Agency: RUSSIAN PROJECTS

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Technological Institute, hotel, sport centre, hospital, theatre, agricultural exhibition, industrial exhibition, velodrome (plans only) Agricultural pavilions (plans only) a/	-	-	12.5	8.7	17.0	10.5	40.1	25.1	69.6	44.3

Includes only part of the total cost of these projects. The remaining costs (estimated at over K 145 millions) will be required after.1959-60.

Agency: HIGHWAYS DEPARTMENT (BUILDINGS)

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Chin Hills Schools and Hospitals	0.8	0.2	0.5	0.1	0.5	0.1	0.2	0.1	2.0	.5
Other Areas	2.4	0.5	2.0	0.4	1.6	0.3	0.6	0.1	6.6	1.3
Total	3.2	0.7	2.5	0.5	2.1	0.4	0.8	0.2	8.6	1.8

J-35

Agency: CIVIL WORKS - (BUILDINGS OF OTHER DEPARTMENTS)

(In Millions of Kyats)

Projects Name or Description	1956-57 1/		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Chin Hills										
Schools	.4	-	.4	-	.4	-	.4	-	1.6	-
Labour										
Labour Welfare Centre	.3	-	-	-	-	-	-	-	.3	-
Fine Arts School	.3	-	.1	-	-	-	-	-	.4	-
Industry										
Weaving School, Mudon	.1	-	-	-	-	-	-	-	.1	-
Cooperatives										
Cooperatives Department Office	.1	-	-	-	-	-	-	-	.1	-
Parliament	.1	-	-	-	-	-	-	-	.1	-
Administration										
General Administration	.3	-	-	-	-	-	-	-	.3	-
Police	2.5	-	2.9	-	2.9	-	2.9	-	11.2	-
Jail	.2	-	-	-	-	-	-	-	.2	-
Total	4.3	1.3	3.4	1.1	3.3	1.1	3.3	1.1	14.3	4.6

1/ No details. Total estimated.

Agency: **PRIME MINISTER'S OFFICE**

Projects Name of Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchang
Office Building	-	-	-	-	1.0	.4	2.3	1.0	3.3	1.4

SOCIAL SERVICES - CAPITAL EXPENDITURES UNDER THE FOUR YEAR PLAN

PART I - HEALTH

1. General

1. Burma is a land of villages and rural areas. Less than 15 percent of the people live in urban areas. Before Independence, rural medical and health services were almost entirely neglected. Vaccination against smallpox and innoculation against plague were about the only health services villagers received. The rate of infantile mortality was appallingly high, while easily preventable diseases were prevalent amongst the people. The human and economic losses due to illness were tremendous.

The urban areas did not fare much better. Although hospitals were provided, the number of doctors and ancillary staff who serviced such hospitals were grossly inadequate, with the result that the medical attention paid to patients was inadequate.

2. The death rate in Burma is among the highest in the world. Death claims 30 out of every 1,000 people in Burma each year, while death rates in countries with modern health conveniences are only one-third of that figure. When infant and maternity death rates are considered, the difference between Burma and medically advanced nations stands out even more glaringly. Death claims 195 children out of every 1,000 children born in Burma each year. Infantile mortality is about six times higher than that in the medically advanced nations. Many mothers also die during child birth. Statistics reveal that the danger of child-birth to mothers in the Union of Burma is from 5 to 10 times greater than that in the most healthy countries.

3. The medical facilities, personnel and supplies available to combat disease in Burma fall far short of requirements. In 1952 the country had only 294 hospitals and dispensaries with a total of only 8,546 beds. This provided one bed for 1980 people and was only one-tenth of what was considered the minimum number of hospital beds required for modern medical care of the sick. There were 552 doctors and 404 nurses employed in the medical services of the State, and about 700 doctors and 600 nurses engaged in private practice. This meant one doctor to 13,580 people and one nurse to 16,130 people in the country. The minimum need for medical personnel is at least 2,400 doctors and 2,700 nurses. On the preventive and public health side, the government in 1952 had only 19 doctors and 3 nurses, with 200 midwives, 140 lady health visitors and 209 public health inspectors. To cope with the national health problems, many times these numbers of trained personnel are required.

4. The Health Programme of the Government of Burma has the following general objectives:

   a. To control and reduce disease in Burma;
   b. To provide health education to all the people;
   c. To provide adequate hospital and dispensary facilities for all areas;
   d. To establish Health Centres for giving advice and assistance to the rural population;
   e. To train sufficient medical and health staff to meet the needs of Burma; and
   f. To produce and distribute essential drugs and medicines.

5. The specific objectives of the Health Programme during the Four Year Plan can be stated in terms of the facilities and staff that are to be made available.

Item	Number in 1956	Number at end of Four Year Plan Period 1960
Hospitals	271	296
Hospital Beds	10,144	11,190
Doctors	631	871
Nurses	196	871
Midwives	1,487	2,287
Lady Health Visitors	218	418
Public Health Assistants	297	505
Vaccinators	226	505
Compounders	363	413
Lab. Assistants	27	54
Lab. Technicians	8	20
X-Ray Technicians	2	18
Lethe Trained	712	1,552
Public Health Nurses	32	46
Sister Tutors	24	64

6. The importance which the Government of Burma attaches to the health programme can be seen in the increasing allocation of funds for that purpose. Since 1951-52, funds for the Health Programme have increased by approximately 140 percent.

	Current Budget K	Capital Budget K	Total K
1951-52 a/	1,46,38,166	9,70,558 c/	1,56,08,724
1952-53 b/	2,77,52,000	1,41,28,191	4,18,80,191
1953-54 a/	2,80,84,713	55,50,540	3,36,35,253
1954-55 a/	2,78,15,468	1,17,57,838	3,95,73,306
1955-56	2,88,66,000	85,75,048	3,74,41,048

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a/ Actual expenditures

b/ Budget estimates

c/ Excludes funds for hospitals expended by the Public Works Department.

B. Capital Programme Under the Four Year Plan

7. This statement will restrict itself to a summary of the proposed capital expenditures for Health under the Four Year Plan. It will necessarily omit discussing what is of equal

or even of greater importance, the plans for improving the operations of the various parts of the programme, the training programmes, the operations of the leprosy, malaria, venereal disease and tuberculosis teams, the operation of Mother and Child Health Clinics, etc., which are financed out of the current budget. Reference will be made to these types of operation only as they relate to a specific investment of capital funds, such as the construction of hospitals, the acquisition of additional equipment, the construction of a training school, etc.

8. Hospital Construction. At the start of the Four Year Plan, there were 271 hospitals in operation in Burma.

Class of Hospital	Number of Hospitals
I. (Key Hospitals)	2
II. (Regional Hospitals)	3
III. (District Hospitals)	35
IV. (Township Hospitals)	228
Dufferin Maternity Hospital	1
Tower Lane Maternity Hospital	1
Mental Hospital Tadagale	1
	271

These hospitals have an estimated capacity of 10,144 beds.

9. Under the Four Year Plan, the following funds have been allocated for hospital construction.

Ministry of Health	K 25.7 million
National Housing Board	K 5.0 "
	K 30.7 million

10. The funds allocated to the Ministry of Health are tentatively planned for the following works:

		Cost (Millions of Kyats)
a.	Akyab Hospital (150 beds)	1.8 [b]
b.	Meiktila Hospital (75 beds)	.9 [b]
c.	Toungoo Hospital (150 beds)	1.8 [b]
d.	Tenasserim (25 beds)	.6 [a]
e.	Monyo (16 beds)	.4 [b]
f.	Rangoon	
	Three hospitals (200 beds each)	5.4 [b]
	Rangoon General Hospital Modernization	8.0 [b]
g.	Mandalay General Hospital	.6 [a]
h.	Dufferin Hospital	1.2 [a]
i.	Insein Hospital	.4 [a]
j.	Ancillary buildings	.8
k.	Central Medical Store Department	2.0
	Total	23.9

The remaining funds (K 1.8 million) will be used for Rural Health Centre buildings and minor construction works.

11. The largest single item in the above programme is the Rangoon General Hospital Modernization Project. Rangoon General Hospital is the largest and most important hospital institution in Burma. It functions as the chief training centre for medical graduates during their internships and for the training of nurses, in addition to its normal work of providing general medical and surgical services.

12. The hospital, begun in 1905, was opened for operation in 1910. It was originally built with a capacity of 546 beds. During the post-war years this capacity has been increased to 800 beds by utilization of nearby buildings. However, the hospital

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[a] Under construction
[b] Pre-construction stage. (Plans and estimates being prepared etc.)

at present is being used well beyond capacity by means of overcrowding the wards and using corridor space, and the present number of beds is 1,300.

13. At the present time the Out-patient Department is utilizing space which could be used for relieving the overcrowded conditions for in-patients, if it were possible to locate the Out-patient Department elsewhere. Average monthly attendance at the Out-patient Department at present is 8,070, and at present there is no space for relocating the Department to handle this load. Thus it is proposed to construct a new building for this Department as part of the first phase of a project for modernizing Rangoon General Hospital, to serve the double purpose of providing more adequate out-patient care and to release space for other hospital functions.

14. The same reasoning applies to the construction of an adjunct Services building as part of the first phase of the project. Space now occupied in existing buildings by these services can be utilized for relieving overcrowding, while the services themselves can be better performed in specialized facilities.

15. The fundamental factor in the need for expansion of the hospital is the doubling of Rangoon's population since 1940 without a commensurate expansion of medical facilities. Coupled with this population increase is an increasing reliance on western medical practices. Use of local dispensaries with limited clinical facilities has to some extent reduced the very great increase in demand for out-patient services. However, it is clear that provision of minimum service to out-patients as well as provision of even less than minimum space and accommodation for in-patients at Rangoon General Hospital depends upon the early completion of new buildings.

16. It is estimated that the Out-patient Department building can be completed within one year from the beginning of construction, the Adjunct Services building within two years. Thus the entire first phase of this project should be capable of completion by the autumn of 1959 if work is started at the end of the rainy season in 1957.

17. It is planned to use for the project the plans which were drawn up by Litchfield, Whiting, Panero, Severud and Associates, of New York. Detailed costing is now being prepared and construction will be under the supervision of the National Housing Board.

18. The hospital funds allocated to the National Housing Board will be used to complete the following 29 hospitals:

	Location	Number of Beds
1.	Myanaung	15 a
2.	Tada-U	15 b
3.	Mahlaing	25 b
4.	Myittha	25 b
5.	Madaya	25 a
6.	Wetlet	25 b
7.	Yedashe	25 b
8.	Kyauktaw	25 a
9.	Pyawbwe	50 b
10.	Ye-U	50 b
11.	Nyaunglebin	50 a
12.	Pakokku	75 b
13.	Kyaukse	75 a
14.	Yamethin	75 a
15.	Myingyan	75 a
16.	Sagaing	75 b
17.	Katha	75 a
18.	Daik-U	16 c
19.	Kama	16 c
20.	Tantabin (Insein)	16 c
21.	Tantabin (Toungoo)	16 c
22.	Chaungson	16 c
23.	Bogpyin	16 c
24.	Ayadaw	16 c
25.	Thabeikkyin	16 c
26.	Mingin	16 c
27.	Monyo	16 c
28.	Oktwin	16 c
29.	Gangaw	16 c

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a/ Under construction
b/ Main Hospital Building completed but ancillary buildings incomplete.
c/ Pre-construction stage. (Plans and estimates being prepared etc.)

19. By the end of the Four Year Plan, the number of hospitals available in Burma will increase from 271 to 296. Capacity will increase from 10,144 beds to 11,190 beds. This represents only one hospital bed per 1479 population, which is still a low ratio of available facilities.

20. The construction of the hospitals mentioned above will obviously not provide sufficient hospitals for Burma. It represents a minimum allocation from the limited resources that are likely to be available for capital purposes. As the Four Year Plan becomes translated into action, it will be necessary constantly to examine the possibility of providing more funds for hospitals, particularly for additional equipment for hospitals. At budget time, when all projects are reviewed annually, shortfalls in other programmes may make it possible to allocate additional funds for hospitals.

21. The provision of an adequate number of trained doctors and nurses is a continuing operational problem and is reflected only slightly in the capital expenditures projected under the Four Year Plan. In 1956, there were 631 doctors and 296 nurses employed in Government hospitals. Under training were 978 medical students, with 94 graduates in 1956. Nurses under training were 403, with 70 graduates in 1956. The Ministry of Health has provided assurances that there will be at least the minimum essential number of doctors and nurses available for the new hospitals as they are completed and available for operation.

22. To improve the facilities for the training of nurses, the Four Plan provides funds for the construction of new students' and nurses' quarters at Rangoon. Present quarters were designed for 75 nurses, but the quarters are being used for 283 nurses in training. The resulting crowding and inability

to employ the appropriate number of nurses in training is one of the main reasons why nursing services in hospitals is inadequate at the present time. The new quarters will cost K 2.4 millions and the building is planned for completion by the end of 1957-58. This will permit increasing the number of nurses being trained to 450, as well as permitting more adequate quarters for all the nurses.

23. The Four Year Plan also includes a provision of K 2.3 million for the construction of a Post Graduate Nurses School. This facility is designed to train supervisory nurses and nurses requiring more specialized training than is available in regular nurses training courses. The School will have a capacity of 150 trainees (100 Lady Health visitors and 50 Post Graduate Nurses) and will be completed by the end of the Four Year Period.

24. The objective of producing and distributing essential drugs and medicines is being met in several ways. The Industry and Power section of this statement includes a description of the Burma Pharmaceutical Industry, which is now in training operation and will be in complete operation next year. The Four Year Plan provides funds for the completion of this industry, which will supply large quantities of yeast, vitamins, alcohol, biologicals and sera for use in Burma.

25. The Four Year Plan provides K 22.5 millions for the purchase of medical stores and supplies. This consists of the following types of items:

a. Drugs and medicines
b. Antibiotices
c. Injectables
d. Laboratory Stains and Chemicals
e. Vaccines and Sera
f. Instruments
g. Ordnance Stores including sundries and appliances.

26. These stores and supplies will be issued to hospitals, dispensaries, clinics, etc., on a non-reimbursable basis. In many cases, they represent additions to the stock of supplies, and indicate the increasing emphasis being placed on the use of modern drugs and equipment. Arrangements have been made to provide more adequate storage and distribution facilities for this function.

27. Dietary and nutritional surveys have revealed that the general status of nutrition in the country is so low that all expectant mothers, nursing mothers and children can be expected to suffer from Aritaminosis and deficiency diseases. To attempt to correct this as soon as possible, a scheme was initiated in 1953 for the free distribution of Vitamins A, D and B Complex tablets to these groups.

28. The total number of these vitamin tablets distributed free of charge up to the end of 1956 is as follows:

	B Complex	A & D Tablets	Costs Kyats
Burma Proper	35,000,000	2,00,00,000	2,81,540
States	3,000,000	20,00,000	2,45,380
	38,000,000	2,20,00,000	5,26,920

29. The Burma Pharmaceutical Industry will produce 140 million Yeast tablets during the year 1957 and about 360 million tablets per year afterwards. These will be reinforced with Vitamins B1, B2 and Nicotinic Acid and will be distributed to expectant mothers, nurisng mothers and children. The projected cost of this programme is K 18.5 lakhs per year.

PART II - EDUCATION

The Educational System Before Independence

1. **The British Period** - Burma had, before the outbreak of World War II, three types of schools: (1) Vernacular Schools in which the medium of instruction was Burmese, (2) Anglo Vernacular Schools in which the medium of instruction was English, with Burmese as the auxiliary medium of instruction in the lower classes, and (3) English Schools in which the medium of instruction was English, with Burmese as a second language.

a. Vernacular Schools

Vernacular Schools, administered by Local Education Authorities (District School Boards and Municipal Committees, etc.) were the only schools for the vast majority of children throughout the country. Their main defect was that they were a dead-end, and in the then Burma, where only students with a good knowledge of English could enter Government Service and the professions, the Vernacular Schools became third-rate. The teachers in those schools were devoted to their work, but they were comparatively worse off than their colleagues in the other two types of schools with respect to training and academic background as well as pay and chances of promotion.

b. Anglo-Vernacular and English Schools

Into the Anglo-Vernacular and English Schools with their high rates of fees and other expenses, only children of parents within the high income brackets could seek admission. In English Schools, admission of children of Burmese parentage was restricted to about ten percent. With the single-track curriculum leading to the University, with few facilities for technical and vocational education, the system of schools was rather divorced from the realities of life.

NUMBER OF GOVERNMENT AND AIDED SCHOOLS DURING PREWAR PERIOD

	High	Middle	Primary
Government Schools	38	7	42
Aided English and Anglo-Vernacular Schools	102	106	7
Vernacular Schools	251	863	5,438

2. Education during the Japanese Period October 1942 to 1945 - After the British withdrawal beginning early in January 1942 and ending May 1942, educational activities came to a standstill owing to the seizure of school buildings by the Japanese army of occupation and the general dislocation of people's lives. In October 1942 attempts were made to revive education in accordance with a scheme drawn by the Burmese Ministry of Education and approved by the Japanese Military Administration. Provision was made for the opening of 3,000 Primary Schools, 300 Middle Schools and 100 High Schools. The pre-war three types of schools, viz, English, Anglo Vernacular and Vernacular Schools, were changed into a single unified type of schools in which the main language and medium of instruction was Burmese.

Conditions during the war were ill suited for an expanded educational programme. There was lawlessness, unrest, lack of school accommodation and an inadequate supply of text-books, teaching aids, stationery and furniture. There was a marked shortage of assistant teachers in the senior grade, and an uneven distribution of teachers with Anglo-Vernacular professional certificates.

B. The Educational System Since the War

3. Changes in the system were made, based up on the Report of the Educational Policy Enquiry Committee and other Reports previously

considered by the Government. A statement of educational policy was announced in 1948, but due to many factors beyond control of the government, it was June 1950 before measures could be initiated to implement this policy.

The salient features of the changes initiated then were:-

a. Amalgamation of the Post Primary and Primary Schools in places where the former existed, to form complete units teaching from the Infact to the Ninth Standard;

b. Revival of Middle Schools teaching from the Infant to the Seventh Standard;

c. Reclassification of Primary Schools, teaching from the Infant to the Fourth Standard;

d. Insistance on the use of the Vernacular (Burmese) as the medium of instruction; and

e. Introduction of English as a Compulsory Second Language at the Post Primary State, i.e., from the Fifth Standard.

4. These State Schools were to be financed entirely out of the central revenues, and, with effect from the academic year 1950-51, tuition and other fees, such as athletic, stationary and library fees, were entirely abolished. Education was thus made free for all pupils in State Schools, from the Primary to the University level.

5. The Government moved energetically to overcome the many difficulties that confronted the educational system after the war.

a. Funds were appropriated for furniture and equipment;

b. Buildings were repaired and new buildings started;

c. Arrangements were made to secure adequate textbooks, scientific apparatus, and teaching aids;

d. Emergency measures were instituted to train teachers.

Satisfactary implementation of these measures was made impossible by the difficulties that confronted the Government in the restoration of law and order. Only in the past few years have conditions permitted the educational system to receive the attention it needs and deserves.

6. The Government directed that an Education Plan be drawn up and laid down the following five fundamental principles for general guidance:

a. To ensure a universal knowledge of the three R's among all citizens of the Union;

b. To ensure the production of a sufficient number of technicians and technologists;

c. To train and equip young men and women so that they can adequately and efficiently perform their various duties as citizens of the Union;

d. To eradicate illiteracy and produce men and women who possess the Five Strengths (Bala-Nhagan);and

e. To perpetuate democracy within the Union.

C. Primary Schools

7. It is the aim of the Government of Burma to provide one Primary School in each village. There are 11,293 village-tracts (each consisting of one or more smaller villages), for which 10,226 Primary Schools had been opened by the end of the 1955-56 school year. Approximately 8 percent of the total population of Burma are now attending Primary Schools, i.e. one child in every 12 persons is now receiving instruction in Primary Schools, and that without any statutory compulsion.

8. A pilot project on compulsory education is continuing in the Insein township (11 primary schools) and Syriam township (1 primary school). Sanction has been obtained to open six more primary schools in Syriam. The degree of success of this experiment will help determine future action in enforcing the Compulsory Primary Education Act.

9. Under the Four Year Plan, it is expected that 1,000 additional primary schools will be opened each year. By the end of the plan period, there should be nearly 15,000 primary schools, with over 1,900,000 pupils.

	No. of State Primary Schools	No. of Pupils
1952	3,335	468,436
1956	10,226	1,534,192
1959-60 (planned)	14,226	1,934,192

10. Construction of Primary Schools is the responsibility of local authorities. However, the Union Government provides funds under its Pyidawtha Grants to enable local communities to build new primary schools or repair and improve existing schools. In the last three years for which records are compiled, over 18 million kyats out of these funds have been opxended on schools.

	No. of Primary School Project	Cost (000)
1952-53	1,393	4,749
1953-54	1,791	7,211
1954-55	1,619	6,328

11. These schools cannot be added together to arrive at the total number of schools, since many of the same schools are repaired each year. Under the Four Year Plan, K 30 million have been allocated for Pyidawtha Grants, a large part of which will continue to be devoted to Primary Schools.

D. Secondary Schools

12. The provision of secondary education for all children is the ultimate aim of the Government. This will require a much larger number of schools and teachers than are now available. However, a great deal of progress has already been made and the Four Year Plan provides funds for further progress. A total of nearly K 20 million is provided for construction of 63 new middle and high schools.

	No. of State, Middle and High Schools	No. of Pupils
1952	180	62,283
1956	635	236,406
1959-60 (planned)	700	274,406

13. New secondary school buildings are of three types: [1]

a.	800 pupil type - estimated cost per unit	K 450,000
b.	500 pupil type - estimated cost per unit	K 350,000
c.	300 pupil type - estimated cost per unit	K 250,000

14. Under the Four Year Plan, the following schools will be built.

Type a (800 pupils) -	10
Type b (500 pupils) -	40
Type c (300 pupils) -	15
	65

This may be compared to the 79 secondary schools constructed during the past four years.

E. Training of Teachers

15. The provision of an adequate number of trained teachers is one of the major problems which the educational system in Burma must overcome.

This was recognized from the beginning, and training programmes were organized as rapidly as possible. A new Directorate of Teacher Training was established in 1952, to direct the following teacher traning institutions.

	Institution	Location	Type of Teacher Training
1.	Teacher Training College	Rangoon	Junior Assistant Teacher
2.	Teacher Training College	Mandalay	Junior Assistant Teacher
3.	Teacher Training Institute	Moulmein	Junior Assistant Teacher
4.	Teacher Training Institute	Akyab	Primary Assistant Teacher
5.	Teacher Training Institute	Bassein	Primary Assistant Teacher
6.	Teacher Training Institute	Kyaukpyu	Primary Assistant Teacher

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[1] These costs will be reduced significantly by simplifying designs, in order to build the 70 schools projected within the funds allocated by the Four Year Plan.

16. An emergency teacher training programme (two months courses) was instituted in 1952, to supply the large number of primary school teachers required by the large number of school openings. This programme has been completed, and the regular training colleges are now being utilized to provide new teachers. A retraining programme has been developed to improve the qualifications of the teachers who had only taken the emergency training course.

17. Since April 1952, over 14,000 teachers have been made available by the various training institutions.

Period		Centre	No. of Teachers successfully completing the course
June 1953 and October 1955	1.	Junior Assistant Teachers (one year course) State Training Colleges, Mandalay and Rangoon	738
June 1953 October 1955	2.	Primary Assistant Teachers (one year course) State Training Colleges, Mandalay and Rangoon State Training Institutes for Teachers, Meiktila, Bassein, Kyaukpyu and Moulmein.	2,958
April and May 1952	3.	Emergency Training Classes for Primary Assistant Teachers (two-month course) Rangoon, Mandalay, Tharrawaddy, Moulmein, Minbu, Sagaing, Akyab, Sandoway and Bassein.	1,000
April and May 1953	4.	Rangoon, Mandalay, Tharrawaddy, Moulmein, Minbu, Sagaing, Akyab, Sandoway and Bassein	1,235
October 1953 and September 1954	5.	State Training Colleges, Mandalay, Moulmein, and State Training Institute, Meiktila.	4,646
October 1954 and May 1956	6.	State Training College for Teachers, Mandalay and State Training Institute, Moulmein, Meiktila and Kyaukpyu	3,571
		Total for teachers under Emergency Training Scheme	14,148

18. In Service Training of Teachers - The Directorate of Teacher Training has also undertaken the improvement of teachers in service by organising "Refresher Courses" for a wide range of subjects at the Centres shown below.

Year	Centre	Subjects	Number Attending
1953 Summer	Rangoon	Physical Education, Domestic Science and subjects of the Primary Curriculum.	340
1953 Summer	Mandalay	Subjects of the Primary Curriculum	
1954 Summer	Rangoon	Agriculture, Art, English, Industrial Arts, Music, Domestic Science, General Science, Physical Education (for males and females) and science seminar	689
1954 Summer	Mandalay	English, Domestic Science and Music	110
1955 Summer	Rangoon	Art, Domestic Science, General science, Physical Education (males and females) and Librarianship.	503

19. There are also arrangements for in-service training of teachers who have just one-year extensive course. They are to attend four week refresher courses at Government expense. In the summer of 1955, 1,367 teachers attended such courses at Mandalay, Rangoon, Moulmein, Bassein and Kyaukpyu.

20. By 30 September, 1955, there were over 27,000 teachers employed in State Schools.

1,149	Senior assistant teachers
2,565	Junior assistant teachers
23,871	Primary assistant teachers
Total 27,585	

This represents an average of 45 pupils per teacher on an over all basis.

Primary schools: 54 pupils per teacher
Middle and High Schools: 37 pupils per teacher

21. The desired goal in the number of pupils per teacher is 40 in the primary school and 30 in middle and high schools. This would require an additional 8,000 teachers in the middle and high schools and 38,300 in the primary school, or a total of 46,300 additional teachers, based on the pupil attendance of 1956.

22. While the number and training of the teachers now employed can scarcely be classified as satisfactory in any absolute sense, it must be noted that the situation has improved very much over the past three years. The next four years will also show a marked improvement, both in the number and training of teachers. Each year, the training schools are scheduled to turn out:

Primary assistant teachers	1,300
Junior assistant teachers	400
Senior assistant teachers	80
	1,780

Thus, during the period covered by the Four Year Plan, over 7,000 teachers will be graduated. While this number will not represent a net addition to the working staff, because of drop outs and retraining, it will result in a significant increase in the availability of properly trained teachers.

23. By 1959-60, it is estimated that out of the 74,000 teachers required, there will be available about 35,200 teachers or about 50 percent of the required teaching staff will be available. This compares with 40 percent at the start of the programming period.

24. The Four Year Plan includes funds for two hostels at the Kanbe Teachers Training School, as well as additional hostels at Moulmein, Bassein and Mandalay Teachers Training Schools.

These hostels, which will cost K 2.8 millions, will provide facilities for 2,000 students and are essential if the Plan to provide even a minimum number of trained teachers is to be achieved.

25. Under the Four Year Plan, over K 10 millions will be provided for equipment and furniture of schools.

	(In Millions of Kyats)
1956-57	1.6
1957-58	2.7
1958-59	2.9
1959-60	3.0
Total	10.2

26. While the provision of funds for this purpose under the Four Year Plan appears generous, there can be no question about the basic inadequacy of these funds. Many schools will still remain meagerly equipped, not only as regards the usual furniture, but also as regards such equipment as duplicators, typewriters, books, art equipment, sports equipment, science apparatus and similar items on which adequate instruction so heavily depends.

7. Technical Training

27. The educational programme of Burma includes a clear recognition of the basic importance of technical training. The Government established in April 1954 "The Technical, Agricultural and Vocational Education Committee", charged with the task of preparing a comprehensive long-term plan on technical, agricultural and vocational education. The report was submitted to Government in August 1955, and the implementation of the recommendations is now under active consideration.

...

28. The following institutions have been established for technical training.

- a. Government Technical Insitute - Insein
- b. Government Technical Institute - Mandalay
- c. Technical High School - Rangoon
- d. Artisan Trading Centre - Rangoon
- e. Artisan Training Centre - Mandalay
- f. Handicraft Training Centre - Rangoon
- g. Polytechnic Classes - (attached to GTI - Insein)
- h. Engineering Technology Survey Classes, Rangoon

29. The total enrolments of these institutions was 746 in 1956, and there were 350 graduates by that year.

Institution	Enrolment in 1956	Graduated by 1956
a. Government Technical Institute - Insein	180	92
b. Mandalay Technical Institute - Mandalay	80	*
c. Technical High School - Rangoon	143	*
d. Artisan Training Centre - Rangoon	103	70
e. Artisan Training Centre - Mandalay	80	50
f. Handicraft Training Centre - Rangoon	60	50
g. Polytechnic Classes - (attached to GTI - Insein)	40	33
h. Engineering Technology Survey classes, Rangoon	60	55
Total	746	350

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* Opened in 1956

30. The Four Year Plan provides nearly 11 milion kyats for capital expenditure by the Directorate of Technical Education. This will be used for all aspects of improving the technical education facilities, including books, equipment, land purchases, classroom buildings, hostels and furniture. While this total is not very large in an absolute sense, it represents a significant increase over capital expenditure for technical education in the past

51. The increasing facilities will make possible a steady growth in enrolment of students. In the four years covered by the Plan, it is expected that nearly 4,400 new students will be enrolled and over 2,600 will be graduated. The population of these institutions during the four years will rise from about 1,300 in 1956-57 to about 2,700 in 1959-60, an increase of over 100 percent. The table below shows the estimated enrolment population and number of graduates projected under the Four Year Plan.

Estimated Enrolment for all Technical School and Training Institutions

	1956-57	1957-58	1958-59	1959-60	Total
1. Government Technical Institute, Insein					
New Recruitment	180	210	210	250	850
Total population	469	587	690	775	2,521
Graduates	92	100	150	180	522
2. Government Technical Institute, Mandalay					
New recruitment	80	80	150	200	510
Total population	163	243	230	270	906*
Graduates	*	60	60	60	180
3. Artisan Training Centre, Rangoon					
New recruitment	103	103	150	200	556
Total population	170	190	250	350	960
Graduates	70	80	80	90	320
4. Artisan Training Centre, Mandalay					
New recruitment	80	100	120	150	450
Total population	65	150	200	225	640
Graduates	50	50	80	100	280
5. Handicraft School, Rangoon					
New recruitment	60	60	100	150	370
Total population	60	60	100	150	370
Graduates	50	50	90	125	315
6. Polytechnic Classes attached to Government Technical Institute, Insein (Leather Tanning and Leather Working)					
New recruitment	40	40	60	100	240
Total population	40	40	60	100	240
Graduates	33	35	50	80	198
7. Technical High School, Rangoon					
New recruitment	143	300	300	300	1,043
Total population	143	443	600	625	1,811*
Graduates	*	100	250	250	600
8. Engineering Technology Evening Classes, Rangoon					
New recruitment	60	100	100	100	360
Total population	175	200	200	200	775
Graduates	55	60	60	60	235

C. Universities

32. The Four Year Plan provides K 8.1 millions for Grants to Universities. This will be used to continue the construction of buildings at the six colleges (Mandalay, Moulmein, Kyaukpyu, Hteedan, Yankin, Magwe) and at Rangoon University. In 1955-56, total enrolment at these institutions was 10,204, of which 7,989 was at Rangoon University.

33. The provision for Grants to Universities represent a very modest addition to the capital of these institutions, far below even minimum requirements. All of the institutions require additional buildings and a great deal more equipment and furniture. Part of this may be provided from sources other than the Government Capital Budget, such as under the Colombo Plan or from the Ford Foundation. Yet it is apparent that all of these resources are likely to be inadequate, and only the greater need of other educational institutions forces these grants to such a low level. Enrolment at these institutions has increased rapidly, as shown by the number of students admitted to the largest unit, the University of Rangoon.

Academic Year	Number of Admissions at University of Rangoon
1953-54	6,663
1954-55	7,939
1955-56	7,989
1956-57	9,664

SOCIAL SERVICES CAPITAL EXPENDITURES UNDER THE FOUR YEAR PLAN

PART III - OTHER AGENCIES

Social Security Board

1. The Social Security Board administers the Social Security Act (1954), which is designed to provide workers some protection against the costs of illness and accidents. It is slowly expanding its functions, as more workers are covered by the Act and become eligible for its benefits.

2. As part of its medical programme, the Social Security Board has established dispensaries at Tamwe, Kamayut and Kemmendine in Rangon and at Mandalay. These dispensaries are designed to provide limited medical attention to covered workers. The Four Year Plan provides 300,000 kyats for the procurement of dispensary equipment and for the construction of one storied buildings to house dispensaries.

Environmental Sanitation and Water Supply Board

3. The Environmental Sanitation and Water Supply Board is responsible for improving the water supply and sanitation facilities available to the villages of Burma. Its programmes include the sinking of tube wells, fitted with hand pumps, and the construction of concrete plates for latrines, which it makes available to villages that undertake to build sanitary latrines.

4. The Four Year Plan provides K 2.6 million to continue the work of this agency. Of this, K 2.0 millions is foreign exchange, to be used for casing pipes, drilling rigs, hand pumps, concrete fabric and cement.

5. The agency reports that in the three years 1953 to 1956, it completed 1427 tube wells. While this is well below the

targets that had been previously established, it represents a substantial contribution to the health and well being of the villagers. The target under the Four Year Plan is to sink about 3,500 wells or nearly 900 wells a year.

6. Cost estimates of wells

	Kyats
a. Casing Pipe Based on average depth of wells drilled to date, 105 feet	1,500,000
b. Hand pumps	500,000
c. Spare parts drilling equipment	150,000
	2,150,000

7. The agency also estimates that it will require about 450,000 kyats for the procurement of fabric and cement used in the construction of concrete plates. Thus far, over 60,000 plates have been manufactured and distributed, and nearly 12,000 sanitary latrines have been constructed. The funds provided under the Four Year Plan will permit this programme to continue at the same level of operation it achieved in 1955-56.

C. State Film Promotion Board

8. The state Film Promotion Board is established to assist the Motion Picture Industry of Burma by providing modern facilities for film production. It also helps Government Departments and Boards in their use of films for education and public information.

9. The Four Year Plan provides K 1.35 millions for this Board, all of which is foreign exchange required to procure equipment.

D. Ministry of Labour

10. As part of its numerous responsibilities for checking on and

improving working conditions in Burma, this Ministry has established the Directorate of Labour, which functions in the fields of labour legislation, industrial relations, industrial arbitration, workmen's compensation, minimum wages, labour statistics, employment exchanges and labour welfare centres.

11. The Four Year Plan includes 400,000 kyats to permit the Directorate to construct small office buildings to house the offices of officials who must work together to enforce the labour laws and assist in the development of improved labour conditions, such as the Inspector of factories, general labour law enforcement, etc.

12. The Four Year Plan also includes 700,000 kyats for continuing the programme of constructing workers centres.

I. Ministry of Democratization and Local Administration

13. The Ministry of Democratization and Local Administration has for its function the establishment or improvement of local administrative machinery which can vigorously execute the large number of planning and administrative action that can best be performed by local governments. As part of this function, the Ministry is developing the following programmes:

a. Town water supply system - Many towns in Burma have very inadequate water supply systems. The Ministry proposes to help these towns by providing funds with which local governments can conduct new wells and new distribution systems.

b. Bazaar construction - Adequate bazaar facilities are very important to the improvement of living standards in the towns of Burma. The Ministry proposes to assist local governments in financing the construction of new bazaars.

c. Road improvement - The roads in some of the towns have deteriorated to the present state where they are real handicaps to civic progress. These roads are not part of the Union network, and therefore can not be improved by the Highway Department. The Ministry will assist the local governments in developing the organizations to work on these roads, and in the financing of such projects.

14. The Four Year Plan provides K 14.9 millions for the financing of these local programmes. While all of the details have not yet been worked out, the Ministry has prepared the following preliminary list of localities to be assisted.

a. Location of Bazaars to be constructed.

	Name of Democratization	Name of Bazaar
1.	Danubyu Municipal	Danubyu Bazaar
2.	Letpadan	Letpadan "
3.	Nyaung U Town Committee	Nyaung U "
4.	Toungoo Town Council	Toungoo "
5.	Mergui Municipal	Mergui "
6.	Alan Municipal	Myoma Council Bazaar
7.	Pegu Myoma Council	Myoma Council "
8.	Kyaukpyu Municipal	Municipal new "
9.	Shwebo District Council	Wetlet bazaar
10.	Minbu	Kyaungzaung "
11.	Moulmein-gyun Municipal	Moulmein-gun "
12.	Pakokku Municipal	Pakokku Bazaar
13.	Thaton Municipal	Thaton bazaar
14.	Mandalay Municipal	Zaygye "
15.	Henzada Myoma Council	Henzada "
16.	Magwe Municipal	Magwe "
17.	Pyu Myoma Council	Pyu "
18.	Myingyan District Council	Taungtha "
19.	Myingyan Myoma Council	Myingyan "
20.	Taungdwin town Municipal	Taungdwin"
21.	Bassein Municipal	Bassein "
22.	Moulmein Municipal	Moulmein "
23.	Pyinmana Municipal	Pyinmana "
24.	Thonse Myoma Council	Thonse "
25.	Insein Myoma Council	Insein "
26.	Mandalay District Council	Amarapura"

b. Location of Town Water Supply Project

1. Pyinmana
2. Yamethin
3. Moulmein
4. Kyaukpadaung
5. Syriam
6. Pyawbwe
7. Meiktila
8. Thayet
9. Minbu
10. Maymyo
11. Yenangyaung

F. Ministry of Social Welfare

15. The Ministry of Social Welfare has included in the Four Year Plan capital expenditures on the following projects:

a. Veterans Rehabilitation Centre

This centre was established in September 1955, to provide training for disabled veterans which will enable them to secure private employment and become self supporting. Training will be given in such fields as typing, printing, telephone operators, furniture making, plumbing, paper box making, projector operations, etc. Wives of disabled veterans will also receive some training to assist the family to become self supporting. The period of training will be between six months and two years and the government will assist the veternas in finding jobs after their course is completed.

At present, there are 25 veterans attending the centre. Capacity will be increased to 150, most of whom will be married and have families.

Under the Four Year Plan, K 1.8 millionsis provided for the construction of such buildings as a hospital, trainees quarters, staff quarters and workshops, as well as some vehicles and furniture. The centre has received a grant of US $ 10,000 from the World Veteran's Federation for equipping the workshops.

b. Children's Home

This project will receive 900,000 kyats, for the construction of buildings and equipment.

c. Phongyi School Buildings

This project will receive 300,000 kyats for the construction of a building.

Agency: **MINISTRY OF HEALTH**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Medical Stores (additions to stocks and non-reimbursable issues)	4.5	3.7	6.0	4.5	6.0	4.5	6.0	4.5	22.5	17.2
Hospital Construction (Rangoon & Mandalay, G.H, Four town hospitals, ancillary buildings)	2.8	1.1	5.5	2.2	8.2	3.3	9.2	3.7	25.7	10.3
Student Nurses Quarters, RGH	1.0	0.4	1.4	0.6	-	-	-	-	2.4	1.0
Post-graduate Nurses School	-	-	1.0	0.4	1.3	0.5	-	-	2.3	0.9
Skin Diseases Hospital (Dists.)	.03	-	.085	-	.02	-	-	-	.135	-
Total	8.33	5.2	13.985	7.7	15.52	8.3	15.2	8.2	53.035	29.4

[illegible]

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
0.4	0.1	6.0	2.0	6.0	2.0	7.0	2.3	19.4	6.4
1.6	0.8	2.7	1.3	2.9	1.4	3.0	1.5	10.2	5.0
-	-	1.1	0.4	-	-	-	-	1.1	0.4
0.7	0.2	1.0	0.4	-	-	-	-	1.7	0.6
2.7	1.1	10.8	4.1	8.9	3.4	10.0	3.8	32.4	12.4

Projects Name or Description
1. School Construction - new
2. Equipment and Furniture
3. Hostel at Kanbe
4. Hostel and Arcon Huts
Total

Agency: **DIRECTORATE OF TECHNICAL EDUCATION.**

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-69		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Books, equipment, etc. for directorate and evening class	0.05	0.05	0.1	0.1	0.1	0.1	0.1	0.1	.35	.35
Government Technical Institute, Mandalay										
a. Land Purchase	0.10	-	-	-	-	-	-	-	.1	-
b. Hostels & Other buildings	0.45	0.15	1.0	0.3	1.0	0.3	1.0	0.4	3.45	1.15
c. Furniture	0.10	-	0.1	-	0.1	-	0.2	-	.5	-
d. Equipment	0.30	0.30	0.3	0.3	0.3	0.3	0.4	0.4	1.3	1.3
Govt. Technical Institute, Insein	0.50	0.40	0.9	0.6	1.0	0.6	0.5	0.3	2.9	1.9
Technical High School, Rangoon	0.30	0.20	0.3	0.2	0.1	0.1	0.1	0.1	.8	.6
Artisan Training Centre, Mandalay	0.10	0.05	0.4	0.3	0.3	0.2	0.2	0.1	1.0	.65
Artisan Training Centre, Rangoon	0.05	0.05	0.1	-	0.1	-	-	-	.25	.05
Handicraft School, Rangoon	0.05	-	-	-	-	-	-	-	.05	[illegible]
TOTAL	2.00	1.2	3.2	1.8	3.0	1.6	2.5	1.4	10.7	6.0

Agency: SOCIAL SECURITY BOARD

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Dispensaries (equipment)	.2	-	.2	-	.2	-	.2	-	.8	-

Agency: ENVIRONMENTAL SANITATION BOARD

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
. Local water and sanitation facilities	-	-	1.0	.7	.8	.7	.8	.6	2.6	2.0

Agency: STATE FILM PROMOTION BOARD

(In Millionsof Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
. Equipment	.6	.6	.4	.4	0.2	0.2	.15	.15	1.35	1.35
			-	-	-	-				
Total	.6	.6	0.4	0.4	0.2	0.2	.15	.15	1.35	1.35

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(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Labour Directorate —										
2. Worker's Centres	-	-	.3	.1	.1	-	-	-	.4	.1
	-	-	.1	-	.2	.1	.4	.2	.7	.3
Total	-	-	.4	.1	.3	.1	.4	.2	1.1	.4

Agency: MINISTRY OF DEMOCRATIZATION AND LOCAL GOVERNMENT

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Town Water Supply Systems	-	-	.8	.4	1.2	.6	2.4	1.2	4.4	2.2
Construction of Bazaars	-	-	3.5	1.5	3.5	1.5	3.5	1.5	10.5	4.5
Total	-	-	4.3	1.9	4.7	2.1	5.9	2.7	14.9	6.7

Agency: MINISTRY OF SOCIAL WELFARE

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Veteran's Rehabilitation Centre - Equipment and Buildings	-	-	1.8	1.2	-	-	-	-	1.8	1.2
Children's Home	-	-	.09	-	-	-	-	-	.09	-
Phongyi's School Buildings	-	-	.3	-	-	-	-	-	.3	-
	-	-	2.19	1.2	-	-	-	-	2.19	1.2

Agency: **UNIVERSITIES**

(In Millions of Kyats)

Projects Name or Description	1955-56		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
Grants for Capital Expenditures	2.0	0.7	1.5	0.8	2.0	1.2	2.6	1.3	8.1	4.0
Total	2.0	0.7	1.5	0.8	2.0	1.2	2.6	1.3	8.1	4.0

MISCELLANEOUS AGENCIES - CAPITAL EXPENDITURES UNDER THE FOUR YEAR PLAN

Customs Department.

1. The Customs Department will receive under the Four Year Plan, a total of K 8 millions for capital expenditures. A large part of this, about K 6.9 millions, is required to purchase 20 launches, needed to improve the ability of the Department to reduce smuggling and enforce Burma's laws. Smuggling activities, unless effectively curbed, can seriously reduce the ability of the country to finance its essential development programmes, The loss of revenue as a result of smuggling, while impossible to estimate, is considered substantial and must be reduced. The twenty launches, scheduled to become available in the four year period, will greatly increase the ability of the Department to extend its activities to areas that it is now unable to supervise.

2. Commitments have already been made for 10 vessels, valued at K 2.2 millions. Some of these vessels are expected to be delivered within the current calendar year. Thus their contribution to the mobility of the Department's patrol and supervision work will show its beneficial effects early in the plan period, both through increased Government's receipts and through conservation of resources which are usually dissipated by being smuggled out of the country.

3. The Customs Department will also receive 100,000 kyats to purchase inspectoscopes, which will improve inspection at points of entry and exit, thereby facilitating the movement of goods through speedier clearances. In addition, the Department will utilize K 1 million to improve its warehouses, which are inadequate in view of the increased volume of goods being handled by the Department.

Foreign Office.

4. The Foreign Office requires capital funds for the following:

a. The construction of buildings for the Embassy staffs in Tokyo, New Delhi and Washington.

These important posts have very inadequate facilities which must be modernized for more efficient operations and for reduction of rentals. It is proposed to use Reparations funds to construct the buildings in Tokyo.

b. The procurement of transportation.

The functions of the Foreign Office require adequate transportation both for reasons of efficiency and prestige. It is proposed to expend 400,000 kyats for automobiles during the four years covered by the Plan.

c. Other furnishings.

The Four Year Plan provides K 5.5 millions for buildings and furnishings, including the buildings in Tokyo, New Delhi and Washington mentioned above. Included in these cost figures are funds for necessary furnishings, such as carpets.

d. Wireless.

To improve communications, the Foreign Office will procure 400,000 kyats of wireless equipment under the Four Year Plan.

C. Government Printing and Stationery.

5. The importance of an efficient Government Printing Office is quite clear. The present office operates under the handicap of worn and obsolete equipment, housed in very inadequate buildings. These conditions are reflected in the cost and timing of printing operations, which, while improving, still leave much to be desired. Although funds are not available to build the completely new and modern buildings and plant

which are needed, funds have been provided under the Four Year Plan for a steady improvement in both plant and equipment.

6. The Four Year Plan provides K 3.1 millions for this agency. Of this, K 2.1 millions in foreign exchange is to be used for the purchase of mechanical composition machines and ruling machines. Some of the printing machines now being used are so obsolete that spare parts are no longer available. These will be replaced by the annual procurement of equipment, which, by the end of the programme period, will provide a reasonable number of modern machines. However, there will still remain in use obsolete and inefficient machines which will have to be used because it is not possible to provide all the funds necessary.

7. The remaining K 1.0 million will be used to complete the 3 storied building for the Union Government Publishing House and for improvement of the building for the Form Press which is now housed in the Insein Jail.

D. Broadcasting Department.

8. The Burma Broadcasting Department is given funds under the Four Year Plan to replace some of the old equipment it now is trying to use. This equipment can no longer be used, as its maintenance is becoming too costly and the breakdowns too frequent. Unless it is replaced, the Department will not be able to made adequate use of the modern broadcasting and transmitting facilities, which are being completed at great expense to the Government.

9. The Four Year Plan includes funds for the completion of the Broadcasting Building on Prome Road by the National Housing Board. It also provides K 3.05 millions for new equipment for the Broadcasting Department, including tape and disc recording machines.

[illegible]. Pawnshops

10. The Government has taken over the ownership and operation of pawnshops, to ensure that they become a source of emergency credit to people, at a reasonable rate of interest. The State Pawnshop Board is a relitively new organization and is opening many new shops. These shops require furniture and equipment, such as scales and safes and as new shops are opened, the need for capital expenditures will continue to expand. The Four Year Plan includes a provision of K 3.15 millions for this equipment and furniture.

F. Purchase Board

11. The Union of Burma Purchase Board is the central procuring agency for government departments and boards. It has not submitted a plan for capital expenditures to the Ministry of National Planning, but the 1956-57 capital budget included K 350,000 for capital expenditures. For the following three years covered by the Plan, it will be necessary to provide additional capital funds for improvements in storage and handling facilities.

G. Civil Supplies Management Board

12. This Board has become the largest trading institution in Burma. Its functions have so recently expanded that it has not yet developed a plan for orderly investment in capital which it needs if it is to remain in so important a position. The capital budget for 1956-57 included K 1.2 millions for miscellaneous equipment and vehicles and K 1.1 millions for the construction of godowns and land purchased. These types of expenditures, at increased rates, will undoubtedly be required in the next three years of the Four Year Plan.

H. Applied Research Institute

13. The Union of Burma Applied Research Institute performs valuable services of investigation, testing, and the setting of standards for both government and private industry. A listing of the departments it operates is sufficient to indicate the scope and importance of its work.

a. Applied Chemistry Research Department
b. Cellulose, Paper and Fibre Research Department
c. Ceramics Research Department
d. Metallurgy and Deology Research Department
e. Physics and Engineering Research Department
f. Analysis Department - (Technical Services)
g. Standards Department - (Technical Services)
h. Atomic Energy Centre

14. The Institute has already made an impressive start, but unless it is given sufficient funds to do its work properly, it's usefulness can quickly become limited. Its research departments require more adequate buildings and equipment, while its Technical Services Department have only begun to function recently and must constantly be growing if they are to continue to be useful.

15. The Four Year Plan provides K 4.1 millions for the Institute. Of this, K 2.1 is for additional temporary and simple buildings. At some time, it will be necessary to construct more impressive (and expensive) buildings, to house the headquarters of so important an institution. However, because of the need to make the most out of available resources, the buildings for the Institute have been limited under the Four Year Plan to strict utility buildings of simple design.

16. The K 2.0 millions provided for equipment represents only a part of the equipment requirements of the Institute. This will have to be supplemented with equipment from other sources that are not directly chargeable to the resources considered available in the Four Year Plan, such as Colombo Plan, special grants from friendly countries, etc. All of the equipment for the Institute will have to be procured abroad and therefore the K 2 millions is provided in foreign exchange.

I. Stevedoring Board

17. The Stevedoring Board is responsible for much of the stevedoring operations in the Port of Rangoon. As such, its efficiency directly effects the volume of traffic that the Port can handle.

18. The funds provided for the Stevedoring Board in the Four Year Plan are to permit the procurement of four motor boats for dispatch purposes, and of three ferry launches to improve the transport of workers. The launches will have a capacity of 150 - 200 labourers per trip.

J. Ministry of Nationalization - Survey Department

19. This agency has been assigned the responsibility of making large scale maps of the country for revising existing maps and for preparing modern maps for the nearly one third of the country for which such maps do not exist. The agency will also conduct minor triangulation of 140,000 square miles and geodetic triangulation of 7,000 square miles. As part of the process of land nationalization and distribution, the Survey Department must prepare 10,000 Kwin maps.

20. The Four Year Plan provides K 5.5 millions for the Survey Department. Of this, K 3 millions will be for equipment, practically all of which have to be procured abroad. The remaining K 2.5 millions will be used to erect buildings to serve as offices, storage dogowns, record rooms, drafting offices, map printing offices and similar small buildings.

K. State Commercial Bank

21. The State Commercial Bank is rapidly expanding its operations throughout the country. All government trade payments are made by this bank and it is rapidly becoming the major banking facility for all government commercial transactions. In order to permit this expansion, the Four Year Plan includes K 2 million for the construction of 6 branch bank buildings. These are not to be of the "monumental" type, but are limited to simply designed buildings that can be quickly erected.

L. Union Bank

22. The Four Year Plan includes K 9.8 millions for beginning the construction of a new bank building. The present quarters of the Bank are inadequate for the volume of business now being performed and serously reduce the operating efficiency of the Bank. The proposed location and design of the new budilding have already been selected but the need to press more essential construction has resulted in deferring the construction of the new bank building until 1958-59.

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Warehouses	0.2	0.1	0.2	0.1	0.4	0.1	0.2	0.1	1.0	0.4
2. Inspectoscopes	-	-	0.1	0.1	-	-	-	-	0.1	0.1
3. Launches (20 launches)	2.2	1.6	2.4	1.6	2.3	1.6	-	-	6.9	4.8
Total	2.4	1.7	2.7	1.8	2.7	1.7	0.2	0.1	8.0	5.3

Agency: FOREIGN OFFICE

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Buildings and carpets	1.7	1.7	2.2	2.2	1.6	1.6	-	-	5.5	5.5
2. Cars	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4
3. Wireless	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4
Total	1.9	1.9	2.4	2.4	1.8	1.8	0.2	0.2	6.3	6.3

Agency: GOVERNMENT PRINTING AND STATIONERY

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Machines	0.1	0.1	0.5	0.5	0.5	0.5	1.0	1.0	2.1	2.1
2. Building - office & storage	0.2	0.1	0.7	0.3	-	-	0.1	0.1	1.0	0.5
Total	0.3	0.2	1.2	0.8	0.5	0.5	1.1	1.1	3.1	2.6

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
0.9	0.9	2.15	2.15	-	-	-	-	3.05	3.05

Agency: PAWNSHOPS

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
0.5	0.5	0.75	0.75	0.94	0.94	0.96	0.96	3.15	3.15

Agency: PURCHASE BOARD

(In Millions of Kyats)

1956-57		1957-58		1958-59		1959-60		TOTAL	
Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
0.35	0.25	-	-	-	-	-	-	0.35	0.25

:ted. This item is from 1956-57 budget submission.

Projects Name or Description
1. Equipment

Projects Name or Description
1. Equipping New Shops

Projects Name or Description
1. Buildings and Machinery

Note: No Four Year Programme submit

Agency: CIVIL SUPPLIES MANAGEMENT BOARD

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Miscellaneous equipment and vehicles	1.2	1.2	-	-	-	-	-	-	1.2	1.2
2. Construction of godowns and land purchase	1.1	0.5	-	-	-	-	-	-	1.1	0.5
Total	2.3	1.7	-	-	-	-	-	-	2.3	1.7

Note: No Four Year Programme submitted. Based on 1956-57 Capital Budget.

Agency: UNION OF BURMA APPLIED RESEARCH INSTITUTE

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Buildings a/	0.5	0.1	1.0	0.3	0.3	0.1	0.3	0.1	2.1	0.6
2. Equipment	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.0	2.0
Total	1.0	0.6	1.5	0.8	0.8	0.6	0.8	0.6	4.1	2.6

a/ Temporary buildings only

Agency: UNION OF BURMA STEVEDORING BOARD

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Motor Boats and Launches	0.1	-	0.6	0.6	0.4	0.4	-	-	1.1	1.0
2. Stevedoring Gear	-	-	-	0.1	0.4	-	-	-	0.1	0.1
3. Buildings	-	-	-	-	-	-	0.4	-	0.4	-
Total	0.1	-	0.7	0.7	0.4	0.4	0.4	-	1.6	1.1

Agency: MINISTRY OF NATIONALIZATION - SURVEY DEPARTMENT

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Survey Equipment	.5	.45	0.6	0.6	1.3	1.3	0.6	0.6	3.0	2.95
2. Buildings - Survey Department	-	-	1.5	0.6	0.5	0.2	0.5	0.2	2.5	1.0
Total	.5	.45	2.1	1.2	1.8	1.5	1.1	0.8	5.5	3.95

Agency: STATE COMMERCIAL BANK

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Branch Bank Buildings (6)	0.5	0.2	0.6	0.2	0.5	0.1	0.4	0.1	2.0	0.6

Agency: UNION BANK

(In Millions of Kyats)

Projects Name or Description	1956-57		1957-58		1958-59		1959-60		TOTAL	
	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange	Total	Foreign Exchange
1. Bank Building	-	-	-	-	3.0	1.0	6.8	3.6	9.8	4.6